DOCUMENT RESUME

ED 422 907 IR 056 926

AUTHOR	McClure, Charles R.; Sprehe, J. Timothy
TITLE	Analysis and Development of Model Quality Guidelines for Electronic Records Management on State and Federal Websites. Final Report.
SPONS AGENCY	National Historical Publications and Records Commission, Washington, DC.
PUB DATE	1998-01-00
NOTE	235p.
AVAILABLE FROM	Electronic version: http://www.nara.gov/nhprc/publications.html
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	MF01/PC10 Plus Postage.
DESCRIPTORS	Access to Information; Archives; Electronic Publishing; *Electronic Text; *Government Publications; *Guidelines; Methods; *Preservation; *Records Management; *World Wide Web
IDENTIFIERS	*Web Sites

ABSTRACT

This report describes a project to develop better records management and preservation strategies for electronic information available on state and federal agency websites. The project had the following goals: to provide a theoretical and conceptual framework within which to understand records management and historical preservation issues related to government websites; to provide a statement of records management and historical preservation principles as they apply to government websites, based on an empirical assessment of state and federal website activities; to provide model guidelines for webmasters and records managers concerning management and preservation of electronic records on government websites; and to promote awareness in, and education of, archivists and records managers concerning measures to be taken in order to manage and preserve historically valuable records on government websites. The report is organized in six chapters. Chapter 1, "Introduction" discusses the objectives and significance of the study and describes the organization of the report; chapter 2, "Selected Literature Review"; chapter 3, "Website Records Management in the States"; chapter 4, "Website Records Management in Federal Agencies"; chapter 5, "Seven Federal Agencies' Electronic Records Policies: A Side-by-Side Comparison"; and chapter 6, "Guidelines for Electronic Records Management on State and Federal Agency Websites." Appendices include site visit probes; site visit participation forms; supplementary data collection from World Wide Web Federal Consortium; and list of project advisory committee members. (Contains 81 references.) (Author/SWC)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 422 907

Analysis and Development of Model Quality Guidelines for Electronic Records Management on State and Federal Websites

Final Report
January 1998

Charles R. McClure
Distinguished Professor
Syracuse University
School of Information Studies
Syracuse, NY 13244
cmcclure@mailbox.syr.edu

J. Timothy Sprehe
President
Sprehe Information Management Associates
4201 Connecticut Ave., N.W., Suite 610
Washington, DC 20008
jtsprehe@intr.net

A Research Study Sponsored by

The National Historical Publications and Records Commission

Seventh and Pennsylvania Avenue
National Archives Building, Room 607
Washington, DC 20408

IR056926

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

CONTENTS

Page

TABLES iii

LIST OF ABBREVIATIONS AND ACRONYMS iv

ACKNOWLEDGMENTS vi

CHAPTER 1 - INTRODUCTION 1
- Objectives of the Study 2
- Significance of Study 2
- Organization of the Report 3
- Overview of the Issues 4

CHAPTER 2 - SELECTED LITERATURE REVIEW 8
- Introduction 8
- Analysis of Electronic Records Management Issues Related to Website Electronic Records Management 11
- Need for Knowledge 57

CHAPTER 3 - WEBSITE RECORDS MANAGEMENT IN THE STATES 59
- Status of Electronic Records Management in the States 59
- Methodology 60
- Findings 63
- State Site Visits and Other Data Collection Activities 75
- New York State Archives and Records Administration Site Visit 77
- Center for Technology in Government (CTG) Site Visit 81
- State of Connecticut Site Visit 85
- Commonwealth of Virginia Site Visit 89
- NAGARA Conference 93
- Overall findings of state data collection 99
- Need for New Vision 99

CHAPTER 4 - WEBSITE RECORDS MANAGEMENT IN FEDERAL AGENCIES ... 103
- Introduction 103
- Methodology for Selection of Federal Agencies 104
- Department of Treasury Site Visit 105
- Site Visit to the Internal Revenue Service 112
- Department of Health and Human Services Site Visit 116
- Department of Defense Site Visit 119
- Interviews with Canadian Records Managers 122
- Overall findings from federal site visits 124

CHAPTER 5 - SEVEN FEDERAL AGENCIES' ELECTRONIC RECORDS POLICIES: A SIDE-BY-SIDE COMPARISON 127
Methodology 127
Findings 129
Implications for the Records Management of Government Websites 132
Federal ERM Policy in Disarray 134

CHAPTER 6 - GUIDELINES FOR ELECTRONIC RECORDS MANAGEMENT ON STATE AND FEDERAL AGENCY WEBSITES 156
Introduction 156
Website Records Management 157
Guidelines for Website Records Management 169
Improving Records Management on State and Federal Agency Websites 174

REFERENCES 178

Appendix A - Site Visit Probes 185
Appendix B - Site Visit Participation Forms 194
Appendix C - Supplementary Data Collection from World Wide Web Federal Consortium 200
Appendix D - Advisory Committee for the Project 205

TABLES

1.1. Level of Records Management and Their Current Scope 5

3.1. Rating of ERM Issues by SARA 78

3.2. Rating of ERM Issues by CTG 81

3.3. Rating of ERM Issues by Connecticut 79

3.4. Rating of ERM Issues by Virginia 86

3.5. Responses to Questionnaire True/False Statements 95

3.6. Responses to Questionnaire Agree/Disagree Statements 96

4.1. Rating of ERM Issues by Treasury Department 107

4.2. Number of Customers Served per $100,000 Invested 114

4.3. Cost per Customer Served 114

5.1. Electronic Records Policies in DOE, NARA, and OTS 135

5.2 Electronic Records Policies in EPA, DoD, BLM and FAA 144

6.1. Typical Stages in Website Administration and Responsibilities 165

6.2. Accountability Exposure Analysis and Recordkeeping Response 167

LIST OF ABBREVIATIONS AND ACRONYMS

ASPE	Assistant Secretary for Planning and Evaluation
BLM	Bureau of Land Management
CIM	Council on Information Management
CTG	Center for Technology in Government
DFARS	Defense Federal Acquisition Regulations
DISA	Defense Information Systems Agency
DIT	Department of Information Technology
DoD	Department of Defense
DOE	Department of Energy
DOSFAN	Department of State Foreign Affairs Network
DTIC	Defense Technical Information Center
e-FOIA	Electronic Freedom of Information Act
EIS	Electronic Information Services
EDMS	electronic data management systems
EPA	Environmental Protection Agency
ERM	electronic records management
ERS	electronic recordkeeping system
FAA	Federal Aviation Administration
FDA	Food and Drug Administration
FDLP	Federal Depository Library Program
FOIA	Freedom of Information Act
GILS	Government Information Locator Service
GPO	Government Printing Office
GRS	General Records Schedule
HHS	Department of Health and Human Services
HTML	hypertext markup language
ICA	International Council on Archives
IRM	information resources management
IRS	Internal Revenue Service
IS	information systems
LV	Library of Virginia
MOU	Memorandum of Understanding
NARA	National Archives and Records Administration
NASIRE	National Association of State Information Resources Executives
NHPRC	National Historic Publications and Records Commission
NII	National Information Infrastructure
NPRM	Notice of Proposed Rule Making
OIR	Office of Information Resources
OIRM	Office of Information Resources Management
OPDIV	Operating Division

OPM	Office of Policy and Management
OS	Office of the Secretary
OSD	Office of the Secretary of Defense
OTIS	Office of Telecommunications and Information Systems
OTS	Office of Thrift Supervision
RECMGMT	Records Management Program
RMLO	records management liaison officer
SARA	State Archives and Records Administration
SHPAC	State Home Page Advisory Committee
SITN	State Information Transport Network
STI	scientific and technical information
UBC	University of British Columbia
UIC	University of Illinois at Chicago
URL	universal resource locator
VIPNET	Virginia Information Providers Network Authority
WWW	World Wide Web

ACKNOWLEDGMENTS

Many persons assisted in completion of this project, and their contributions were important to the overall success of the effort. The authors wish to acknowledge the assistance, effort and dedication of the following study team members who contributed significantly to the preparation of this paper: Nicole Dufresne, Patte Weathers-Parry, Jennifer Meyer, Susan Mahlstedt and Kevin Bontenbal. Steven Wyman prepared the section on side-by-side analysis of seven agency electronic records management policy documents. Irene S. Goldstein edited the final draft of the report.

The study team also wishes to express its appreciation to the many state and federal employees for generously providing their assistance and time in the midst of busy schedules to provide the researchers with valuable information about their agencies' record management policies and guidelines. We especially wish to thank the individuals who participated in the site visits to state and federal agencies.

The authors also wish to acknowledge the assistance of members of the project's advisory committee: Bette Dillehay, Michael Miller, Charles Robb, Glenn R. Schlarman, Tim Slavin, Catherin Teti, Carlynn Thompson, and Mary Ann Wallace. Joyce Ray, then Assistant Program Director, National Historical Publications and Records Commission, assisted in development of the study and participated as an observer in the advisory committee.

Charles R. McClure
J. Timothy Sprehe
January 1998

CHAPTER 1
INTRODUCTION

Within the last two years, state and federal government agencies have gone from limited knowledge of what the Internet is to administering multiple websites on the Internet. All state governments now have one or more homepages on the Internet, as revealed by the directory of state homepages maintained by the National Association of State Information Resources Executives (<http://www.nasire.org>). At the federal level, virtually all agencies now have homepages, as do many component subunits of agencies (Ryan 1996). A "gold rush" mentality characterizes the stampede to get on the Web. Websites are rapidly becoming "a framework for the creation, management, use and dissemination of corporate record holdings" as the National Historical Publications and Records Commission states the matter in *Research Issues in Electronic Records* (1991).

Internet homepages, both governmental and nongovernmental, are typically constructed from a combination of multimedia screens laced with hypertext links to other collections of information. A homepage, then, is actually a "metapage" that allows access to many other information sources. This aspect of the Web is both powerful and problematic. On the positive side, hypertext offers the possibility of creating a deep information structure with connections to innumerable other hyperstructures. On the negative side, government agencies currently exercise little management control over websites as a channel of official information dissemination. Much of the content of government Webs is ephemeral, inaccurate, or outdated. Management control processes that govern issuance of publications frequently do not function in the Internet environment, and agency procedures for managing homepage sites bear no relationship to records management programs.

Complicating the situation is the fact that a vast array of federal and state government information increasingly is available only via the Web over the Internet (McClure and Ryan 1996). The perceived effectiveness of the Internet for public access to the publications of the late 1990s is motivating more government agencies to abandon printed publications and to issue more documents in electronic format only (e.g., U.S. Bureau of Census), both over the Internet and via formats such as CD-ROM.

While all concerned trumpet the historical significance of the Internet revolution, no one appears to be taking into account issues of historic preservation. Agency efforts at establishing quality standards for their proliferating homepages ignore records management questions. In an early 1997 Internet search for guidelines or standards for government Web pages, the principal investigators for this study found guidelines documents for 11 federal agencies (including two cabinet departments and one military service), documents typically bearing titles such as "World Wide Web Standards and Guidelines." In an earlier but more comprehensive assessment, Schneider (1996) reviewed 21 federal agency documents on Internet-related policies, but found no mention of records management or historical preservation.

In the reviews conducted by the principal investigators and Schneider, the guidelines/standards contained no guidance concerning the records management and historic preservation aspects of information and documents posted on agency websites. Fundamental issues of infrastructure, organization, management, and optimization of information resources have yet to be addressed concerning the electronic records being presented on web pages.

Government agency web postings may be official records. When they are, they warrant the same management considerations as other records. To the extent that they are official records that represent part of agencies' corporate history, they must be systematically examined in terms of long term preservation and access. While the investigators restricted this project to the practices of state and federal governments, they believe their work will have substantial applicability to records management and historic preservation on any website.

Objectives of the Study

The broad purpose of this project was to develop better records management and preservation strategies for electronic information available on state and federal agency websites. More specifically, the project had the following goals:

- To provide a theoretical and conceptual framework within which to understand records management and historical preservation issues related to government websites
- To provide a statement of records management and historical preservation principles as they apply to government websites, based on an empirical assessment of state and federal website activities
- To provide model guidelines for webmasters and records managers concerning management and preservation of electronic records on government websites
- To promote awareness in, and education of, archivists and records managers concerning measures to be taken in order to manage and preserve historically valuable records on government websites

The investigators proposed to achieve the goals by accomplishing the following objectives:

- Formulating and developing in greater depth the records management and historical preservation issues posed by government websites
- Assessing empirically the degree to which federal and state government websites currently are addressing records management and historical preservation in their website management
- Interviewing state and federal webmasters and records managers concerning their practices, attitudes, and opinions toward records management and historical preservation in the website environment
- Developing a set of model "best practices" guidelines that can serve to advise government webmasters and records managers regarding records management and historical preservation on their websites

- Disseminating and advocating widely the guidelines within the federal and state information resources management communities
- Offering training to key federal and state personnel on application of the guidelines

Accomplishment of these objectives will be an important first step for improved records management and preservation of electronic information in state and federal websites.

Significance of the Study

With the development of the National Information Infrastructure (NII), passage of the Telecommunications Act of 1996 (P.L. 104-104), and increased pressures on government agencies to disseminate information more effectively and efficiently, use of Web-based information resources continues to expand. The Internet's rapid growth is a significant factor in the dissemination of federal information (Ryan 1996). Encouragement to agencies to use electronic media has been formalized in *OMB Circular No. A-130, The Management of Federal Information Resources,* (Office of Management and Budget 1996), and in the Paperwork Reduction Act of 1995 (P.L. 103-13). Yet, records managers know very little about how these and related initiatives have, in fact, affected the preservation of government information in a Web-based context.

Use of the Web will only become more pervasive and complex over the next few years. It is essential that records managers devote resources immediately to ensure that Web-based electronic records are preserved as part of the nation's documentary heritage. It is essential that guidelines addressing key issues related to the preservation of government information on websites be developed and widely disseminated. While the phenomenon of Web homepages is still growing, the records management and archival community must draw attention to the importance of quality standards for Web-based information resources.

This project is intended to assist in government officials' deployment and use of Web-based information resources. Distilling experiences, both good and bad, of government website development for general knowledge within the records management community increases the likelihood that the quality of historical preservation of electronic records will be improved. Technical knowledge can enable other agencies to leapfrog certain avoidable hurdles. Benchmark homepages and guidelines are identified for others to consult. The best practices and critical success factors discovered through this project will have general utility to homepage designers in nearly any setting. But most importantly, state and federal managers of websites will have a set of carefully developed guidelines to assist them in developing procedures for managing and preserving website information.

Organization of the Report

This report is organized into six Chapters.

Chapter 1. Introduction. Discusses the objectives and significance of the study and describes the organization of the report.

Chapter 2. Selected Literature Review. Reviews and analyzes the literature on 21 issues.

Chapter 3. Review of the Status of State Website Records Management. The methodology and findings of a documentary search for information on state and state website ERM policies are presented.

Chapter 4. Review of the Status of Federal Website Records Management

Chapter 5. Comparison of Seven Federal Agencies' Electronic Information Policies: A Side-by-Side Comparison

Chapter 6. Guidelines for Electronic Records Management on State and Federal Agency Websites. Summarizes lessons learned and presents a set of guidelines for website records management.

Overview of Issues

The practice of records management can be conceptualized at three different levels: the general level of records management; a second, narrower level involving electronic records management (ERM); and a third, even narrower level of website ERM. Most states have developed guidelines and policies for the first level. As one approaches the second level, however, varying degrees of guidelines and policies begin to emerge among states; at the third level, guidelines and policies for website ERM are almost nonexistent.

Federal guidelines that address the management of records on websites are much further along than those that govern website records at the state level. Unfortunately, the third level was the primary focus of this study--a level not yet reached by most states. Table 1.1 lists these three levels of records management and the current scope of each.

Table 1.1 is not intended as a standard or suggestion for what should be the scope of these levels, but rather it is a display of what state agencies currently focus on related to each of these levels. Federal agencies has adopted a greater scope in regard to Level III. The side-by-side comparison of seven federal agencies in Chapter 5 offers an overview of policies and guidelines in the federal arena.

Table 1.1. Level of Records Management and Their Current Scope

Level		Scope
I.	Records management	Traditional print environment and paper documents
II.	Electronic records management	Spreadsheets, word processing files, data files, hardware and software standards and updates, e-mail, storage, retention, disposition, and legality issues
III.	Website electronic records management	E-mail, website creation guidelines

For some time now, states have practiced Level I records management in regard to their print documents. Over time, this environment of paper records has evolved into a new and vastly different world of electronic records. In this new environment, many Level I guidelines and practices have been applied. It is important to note, however, that the application of these policies and guidelines for records management in the print environment do not successfully translate into the digital world. Many of the issues and problems facing the management of electronic records cannot be adequately solved by applying Level I records management practices. The two levels--paper and electronic--are different in many respects and, therefore, involve different kinds of records management requirements.

Although some transition has occurred between Level I and Level II, this migration is not appropriate for Level III. The states' lack of progress at Level III is a fair indication that states do not yet recognize the necessity of managing records on the state websites. After conducting some preliminary site visits with several states, the study team noted that the states take one of three perspectives:

- They are completely unaware
- If they do have knowledge they are unsure how to apply what they know
- Even if they did know they are incapable presently of doing anything.

This situation poses severe consequences for the states. As mentioned, the level of website ERM is currently expanding as more and more state agencies disseminate information via the World Wide Web (WWW) and use the Internet in their day-to-day operations. With no focus and/or guidelines in place to deal with this proliferation, many states stand to lose vital information. Therefore, this drastic expansion calls for the timely adoption of guidelines and policies that address the issues and aspects of records management at Level III.

Ultimately, records management involves exercising control over all phases of the life cycle of an information resource, from creation and organization, through dissemination, use, and either permanent retention or destruction (Schwartz and Hernon 1993, 1). The first level of records

management has accomplished this control function fairly successfully, but as states become more proactive with their records and do more and more business in an electronic environment, the need for guidelines and policies to ensure control over the life cycle of website electronic records becomes more urgent.

Before a successful records management policy can be put into place, certain definitions must be clear. The first, and perhaps most important, is the definition of a record. Many definitions of a record have been given for the first level. The Association of Records Managers and Administrators defines a record as:

> recorded information, regardless of medium or characteristics, made or retrieved by an organization that is useful in the operation of the organization (Schwartz and Hernon 1993, 60)

Others define a records as:

> all those documents, in whatever medium, received or created by an organization in the course of its business, and retained by that organization as evidence of its activities or because of the information contained (Schwartz and Hernon 1993, 60)

These definitions may be appropriate for a print environment in which most records are static and permanent, but in the dynamic, changing environment of the WWW, these definitions break down. Furthermore, these definition are broad in nature and seem to imply that the form of medium of a record is secondary to that of the information that it carries. Concomitantly, many state officials currently believe that information found on their websites does not constitute official records. Therefore, because they lack a clear understanding of the differences among an official record, a document, a publication, and a public record, states experience confusion as to how to manage officials records appearing on their websites.

One agency that has produced some guidelines for ERM is the National Archives and Records Administration (NARA). NARA's identification of an electronic records is:

> data files and data bases, machine readable indexes, word processing files, electronic spreadsheets, electronic mail and electronic messages, as well as other text or numeric information (NARA 1996, 1)

Again, this attempt to deal with electronic records is successful for Level II, but it also falls short of providing definitions and guidelines for Level III. Absent in this definition is any mention of website records. This definition is also broad in scope, especially since site visits by the study team revealed disagreement as to the nature of what is actually present on state websites.

Without a clear definition of what constitutes a website electronic record and lacking a common understanding of the differences among an official record, a document, a publication, and

a public record, their management becomes difficult and is often done in an *ad hoc* fashion. Many states and their agencies are at a loss to determine what in their agency constitutes electronic record. Schwartz and Hernon (1993) assert:

> Realistically it may be very difficult to determine what exists in an organization in optical or electronic form, since many files appear only as entries on disk directories and do not occupy visible space. (p. 152)

Getting over the hurdle of defining what constitutes a website electronic record is the first step in developing and designing successful website record management guidelines and policies. But the definition is just the first step in a successful management system of website electronic records. Many others issues face the development of website ERM, outlined in the following chapters of this report.

NARA (1996) does offer some valuable guidelines for recordkeeping requirements that any agency should take into consideration as part of its design for a website records management system. In short, these guidelines require:

> full and accurate documentation of the system; the functions supported by the system; the operational, legal, audit, oversight, or historical requirements for the information; how the information will be used, accessed, and maintained on each medium to meet these differing requirements; and the procedural controls employed to preserve the integrity of the data in the system. (p. 3)

Although these requirements were designed for electronic records, and not specifically website electronic records, they can serve as guidance for the management of Level III records as well.

NARA's (1996) guide for managing electronic records further suggests that effective ERM requires coordination among the following groups:

- Information systems managers
- Information technology managers
- Records managers (pp. 8-9).

Records management is concerned with gaining control over the recorded information that an institution needs to do business. This characteristic makes records management vital to the success of any organization. As the proliferation of website records increases, development and implementation of website records management policies are necessary in order for an agency to determine which information is publicly available and to guide them in their information resources management practices. A typology of policy issues and guidelines that can guide state agencies regarding the various elements of the information life cycle for Level III website records management is currently lacking. This typology is the substance of what this report attempts to address and delineate.

CHAPTER 2
SELECTED LITERATURE REVIEW

Introduction

The context for electronic records management (ERM) of government websites is changing rapidly. Schorr and Stolfo (1997) discuss the environment in which governments are expected to provide "easy, fast, secure and accurate interactions" with the public, even with "shrinking staff and budgets" (p. 4). Their report identifies information technologies as possible means of alleviating the imbalance between demand and resources. The technologies will bring about changes in that "the new network-centric world will present other societal challenges beyond the pragmatic concerns of efficient and affordable Government information services" (p. 4). The authors assert that "in the age of the multi-national corporation, the focus on competitiveness needs to move to our Nation's greatest resource, the 'knowledge worker', [and] it is essential that the Nation train the next generation of U.S. workers to compete in an emerging Web-based service economy" (p. 8). To further strengthen the argument of public expectation, the authors observe that "some Federal agencies have been agile in taking early advantage of Internet and Web technologies. This experience has raised expectations and interest that the Government further utilize technological advances to improve operations and services delivery" (p. 8).

While a limited body of literature addresses website ERM, website ERM flows from traditional ERM, and a number of concepts and issues surrounding ERM are likely to be applicable to website ERM. The purpose of this literature review is to identify and analyze key issues of website ERM and to define the context within which website ERM operates. The review concentrates on writings from 1990 through October 1997, is selective, and is not intended to be comprehensive. The review also considers the degree to which ERM of websites has gained attention in the professional literature.

The literature review is constrained by the limited number of writings available about ERM of websites. Since few sources directly address websites in the context of ERM, the study team focused on general ERM literature for the bulk of the literature reviewed.

Key introductory and overview sources identified in the literature review on ERM include the International Council on Archives' (ICA) *Electronic Records Management: A Literature Review* (Erlandsson 1996), its *Guide for Managing Electronic Records from an Archival Perspective* (ICA 1996), and *Towards the Digital Government of the 21st Century* (Schorr and Stolfo 1997). *A Federal Records Management Glossary* (NARA 1993) also proved helpful in clarifying terms related to ERM. These resources provide a basic, introductory overview of recent literature and projects concerning ERM and provide a useful summary of ERM literature.

Electronic Records Management: A Literature Review (Erlandsson 1996) focuses on the life cycle of records, a discussion applicable to website electronic records management. Erlandsson's review discusses professional literature from the United States, Australia, and Canada in detail, and

also includes a section on ERM in Europe. Erlandsson stresses that archivists must be involved with records before they are created. Erlandsson also asserts that users must understand their responsibilities, organizations need to develop policies and standards for management of records, and then corporate culture needs to accept the policies and standards. This source is an excellent beginning point for assessing the literature on ERM.

The authors of the *Guide for Managing Electronic Records from an Archival Perspective* (ICA 1996) considered a wider range of issues surrounding archival management than they originally had planned, because archival management does not exist independently of other aspects of archives. Similarly, this study deals with issues related to both ERM and traditional records management because website ERM does not exist separately from those media. The *Guide* states:

> Because the issues of archival management are closely linked to the design of systems and the establishment of new information policies, archivists have been driven to examine a broader set of record management issues in order to carry out the archival function in the digital environment. (p. 7).

This literature review therefore considers issues surrounding traditional and ERM, and the creation of electronic information systems in order to explore fully the issues relevant to website ERM.

Another key introductory source is the *World Wide Web Home Page Guidelines and Best Practices* (World Wide Web Federal Consortium 1996), which provides an overview of issues and concerns facing federal webmasters. The Consortium's *Guidelines* offers recommendations for the design, management, and development of policies for websites. Other sources that provide useful background information and that helped initially to shape key issues are *Research Issues in Electronic Records* (NHPRC 1991) and *Draft International Standard: Australian Standard Record Management* (Standards Australia 1996).

The items reviewed in this section do not include state or federal policy instruments, except to the extent that literature about ERM and website ERM include such policy instruments. The Federal Records Act of 1934 (44 *U.S.C.* 3301); Office of Management and Budget Circular No. A-130, "Management of Federal Information Resources," (OMB 1996); and a host of documents and policies that can be found on NARA's website <http://www.nara.gov/> are a good beginning point for ERM federal policy information. In addition, an October 1997 federal district court ruling *(Public Citizen* v. *John Carlin 1997)* "threw out a two-year old NARA regulation [General Records Schedule 20] that let agencies wipe out electronic documents regardless of content" (Ruling 1997). The impact of this decision on ERM in the U.S. federal government is still being analyzed. A formal analysis of these and other state and federal policies, however, is beyond the scope of this review. Chapter 5 of this report provides a detailed study of a number of draft ERM policy statements from federal agencies. A range of ERM issues also accompanies the NII initiative (Phillips 1994), but the issues are also not addressed here.

Based on the literature reviewed, a number of key topics were identified for analysis in this chapter:

- Records Life Cycle
- Official Records
- Records Integrity (including Security and Authenticity)
- Versions of the Records
- Electronic Records Disposition
- Liability
- Access and Retrieval
- Accountability
- Accuracy
- Appropriateness and Timeliness
- Use of Disclaimers
- External Links
- Maintenance of Websites/Electronic Records Management Systems
- Metadata
- Preservation of Electronic Records
- Privacy
- Organizational Responsibility for Electronic Records Management
- Risk Management
- Storage Facility/Custody
- Creation of Electronic Records Systems
- Appraisal

Each of these issues is summarized and then analyzed, topic by topic.

A number of related topics are not included in this review. Training, for example, is a topic that this study does not cover, although it is important in ensuring that officials responsible for managing records on websites are prepared and qualified. Issues related to the development and use of standards for metadata and records management systems are also beyond the scope of this review. The materials covered do not include formal federal policy instruments, except to the extent that literature about ERM and website ERM includes federal policy instruments. Selected federal policy instruments related to agency ERM are handled in a separate section.

Considerable literature is available for some topics, while for others there is no literature. The topics identified through the literature (both print and on the Web) and found in professional and government resources represent current thinking regarding website ERM. This review emphasizes ERM in a governmental context; it also emphasizes material that begins to define key issues and contexts related to the management of official records within a web environment.

Analysis of Electronic Records Management Issues Related to Website Electronic Records Management

ERM issues are not mutually exclusive, and therefore the sources reviewed often do not fit neatly under any one issue or category. The purpose of this section is to discuss information from the various sources related to representative topics regarding ERM. Analysis of the literature follows the general discussion of issues for each topic.

Records Life Cycle

Records life cycle refers to the various stages through which records pass from the time they come into existence until they are finally destroyed or permanently retained.

Issues

Records pass through various stages: creation, maintenance, use, and disposition (NARA 1993). As with products manufactured by corporations, documents have a life cycle, Identifying the stages of that cycle is critical to accuracy and organization of an agency's information history. Archivists and information managers reviewed in this section highlight differing views in defining a life cycle. NARA (1990) discusses the life cycle of records in *Managing Electronic Records*. Various issues affect each of the four stages of the life cycle--creation, maintenance, use, and disposition--and some issues apply to all four stages. In *Disposition of Federal Records: A Records Management Handbook*, Wire (1992) discusses records disposition in the context of the life cycle. He states, "According to the life cycle concept, records go through three basic stages: (1) creation (or receipt), (2) maintenance and use, and (3) disposition" (p. 1-2), and notes that the stages of the life cycle are interrelated. The two documents discuss the same functions, but the former considers maintenance and use as one stage, and the latter as two separate stages.

Thibodeau (1996) discusses the linear life cycle of electronic records, as compared to "hardcopy" records. The life cycle of electronic records is more complex than for paper records, he asserts, because electronic records have different properties. The stages of the life cycle that apply to records management are not applicable to the records life cycle in the electronic world. The life cycles of electronic records can be complex, according to Thibodeau, "because the same stored data can participate in many different records and, conversely, any given records can be composed of data stored in different logical and physical files" (p. 283). Because of this major difference, electronic records also must be managed differently. In regard to information systems used to create, process, and transmit records, and records systems used to manage and preserve systems, Thibodeau believes that to "distinguish records systems from information systems could have disastrous archival consequences . . . [and] would render the decision-making process opaque, making it impossible to preserve authentic evidence of governmental processes" (p. 286).

Barry also discusses the life cycle of electronic information. Of particular interest to this study is Barry's view of the life cycle of documents occurring in four stages: (1) creation and

identification, (2) appraisal, (3) control and use, and (4) disposition. In an organization, the life cycle takes place across five domains:

- personal
- workgroup
- work unit
- institutional
- external (p.252)

Barry (1994) notes the limitations of the life cycle and the domains of record use. Both stages and domains help organize the processes that records undergo, although the stages and domains tend to be thought of as being "static and serial places where documents may be found at any given stage along a continuum" (p. 253). Barry posits that the record process normally starts at the creation stage and ends with disposition. Likewise, documents begin in the personal domain and end either in the institutional or external domain.

O'Shea (1996) states that "because electronic records are software and hardware dependent and these change with time, the notion of the life cycle management of electronic records is difficult to sustain" (p. 3). Hernon (1996) discusses the Paperwork Reduction Act, Circular A-130, and the 1993 Revision of Circular A-130 in terms of the information life cycle and how regulations relate to information resources management (IRM). He notes:

> Effective development of an information resource should be rooted in sound management of the information life cycle; it is becoming more and more apparent that the life cycle itself must be rooted in core business processes defined by strategic information management - a high-level management activity. (p. 144).

Also, Hernon asserts:

> Circular A-130 and accompanying policy instruments should be organized around the stages of the life cycle for either information or information technology, depending on which is appropriate. . . . [T]oo often, life cycle planning for information systems. . . stops at implementation. In other cases, the life cycle is wrongly equated with the expected obsolescence of computer equipment. Both of these approaches fall short of dealing with the real life cycle of the information in the system, which includes creation, maintenance and use, and disposition (p. 145).

Creation, distribution, utilization, storage (active), transfer, storage (inactive), and disposition or permanent storage are the stages that constitute the life cycle of official records for records management (Hernon 1994a). Hernon notes that it is important to know that a record can be "disposed of at any point during its life cycle" (p. 146), and that it does not have to go through all seven stages. He also states that "a life cycle is a practical plan for accomplishing a goal--the management of a record, information system, information technology, and so forth" (p. 147).

Hernon (1994b) cites DeSanti as stating that information life cycle management has five major functions: "(1) information creation or gathering, (2) data management and information processing, (3) security management, (4) transmission and dissemination, and (5) final disposition" (p. 149). Hernon (1994a) notes that "decisions in one stage affect those made in other stages particularly when agencies use technology and deal with electronic information resources" (p. 149). Hernon (1994c) also cites Burk and Horton, who state that "'information content, not the medium, governs decisions on whether and when records will be archived or purged' and that 'one goal of [information life cycle management] is to integrate the life cycle stages or eliminate the unnecessarily duplicative and redundant re-entry of source data already captured'" (p. 150).

Hernon (1994a) notes that various versions of Circular A-130 "do not associate the same stages with the information life cycle" (p. 153) and claims that the following are the most obvious points of difference: "(1) the omission of protection or security as a possible stage in the 1993 Circular, (2) more attention to information dissemination as part of information management in the 1993 Circular, and (3) replacement of the stage for retirement with two stages, storage and disposition, in the 1993 Circular" (p. 153). The 1993 version of Circular A-130 states that no distinct dividing lines can be drawn between phases, despite unique characteristics. The reason for this, according to OMB, is that at any step in the cycle, a previous step may have to be revisited, hence no step may ever be completed entirely except for the beginning and end. Hernon concludes that the differences in the life cycle discussions in the versions of Circular A-130 are due to differing focuses on information and systems/technology: "There seem to be two life cycles, one for information and the other for systems or technology" (p. 155).

In a discussion of the creation of records, Erlandsson (1996) notes the need for archivist participation in designing systems for electronic recordkeeping and believes the need is becoming more self-evident. He also notes the need for "features for identification of records, as well as for their appraisal, arrangement, and description" to be built into computer systems (p. 11). In a website ERM situation, records managers and archivists could help webmasters design the websites to facilitate future management of the site's content, structure, and context. In this case the context would be the website's linking to and from a particular website.

The draft ICA's (1996) *Guide for Managing Electronic Records from an Archival Perspective* asserts that every archive must conduct four activities, despite differing circumstances surrounding archives in general:

1. Be involved in the entire life cycle of electronic systems that create and retain archival records to ensure the creation of electronic records that are authentic, reliable, and preservable
2. Ensure that records creators create and retain records that are authentic, reliable, and preservable
3. Manage the appraisal process and exercise intellectual control over electronic records
4. Articulate preservation and access requirements to ensure that archival records remain available, accessible, and understandable (p. 21)

These strategies cover the entire life cycle and indicate that a record goes through stages during the life cycle that are interrelated and interdependent.

ICA's Committee on Electronic Records (1996) discusses the life cycle of electronic records in traditional terms, with one exception. It suggests a stage prior to the creation stage, referred to as "conception." Conception deals with the idea that "unless provision for creation of a record has been built into an electronic system at the design stage, records creation cannot and will not take place" (p. 18). The Committee's position is consistent with that of other ICA documents that recommend archival and records management participation in the design of electronic information systems. In a discussion of the life cycle of electronic records the authors note:

> Functional requirements for the management of electronic records should be addressed in the design and specification of electronic information systems in order to ensure that the systems are actually able to keep records, that the content, context and structure of the records provide reliable evidence of the creator's activities, and that archival electronic records are identified and preserved. (p. 22).

The functional requirements also coincide with the idea that records managers must be involved with electronic records before they are transferred out of the agency's possession in order for official records to be managed properly throughout the record life cycle.

Analysis

The five major functions of information life cycle management--information gathering and creation, data management and information processing, security management, transmission and dissemination, and final disposition (according to DeSanti, quoted in Hernon 1994b)--broadly define the issues surrounding ERM, which are in turn applicable to website ERM. The major functions clarify another view: The goal of life cycle management is to integrate stages to reduce redundant information. The value of reduction of redundant information and integration of stages is evident in the issues surrounding both ERM and website ERM. Issues do not fit easily into one stage, are often present throughout the life cycle, and are closely related to other issues.

O'Shea's (1996) views life cycle management of electronic records as difficult to support because one cannot depend on software and hardware to remain unchanged. Managing electronic records would surely be easier if the management were not dependent on specific storage and retrieval technologies. Yet the benefits of using electronic records, such as the great efficiencies in indexing, searching, retrieving, and manipulating information, outweigh the costs of having to migrate electronic records to new technologies. Standard applications can be used to make it easier to migrate electronic records, including website records. Hernon (1994a) believes there is a life cycle for information and a life cycle for systems. This is an important point, because if a system is in the disposition stage, the information in the system is not by default ready for disposition as well, but rather needs to be migrated to another system to continue its cycle as required.

The concept of saving information based on its content rather than the medium on which it is stored is an issue pertaining to all stages of the life cycle. Holden and Hernon in Hernon, McClure, and Relyea (1996) discuss phases in the life cycle that occur prior to the creation of the records. Four of nine p[hases occur before creation or collection. This concept is based on understanding the organization, its information needs, and its core business processes. This aspect of a life cycle includes administrative steps needed to ensure proper management of the resources that are not part of other life cycles reviewed. Websites must be carefully planned, organized, and designed so they will provide the necessary information to clients; but they also must be maintained for use in their unique format, with hypertext intact and information in context as designed.

The life cycle of electronic documents and websites may be more complex that than of paper documents (Thibodeau 1996). Technology is usually more complex than traditional, nontechnical means, and therefore management of records using this technology will be complex. Despite the complexity of life cycle management of records or information using technology, it can also be a benefit because of the physical space savings, organizational possibilities, and retrieval features. In referring to life cycle management of electronic records, Thibodeau (1996) deems it "disastrous" to make distinctions between information and records systems, because it would make it difficult to provide authentic evidence of organizational actions. This point is well made; information that is not a record may be crucial to the meaning of a record, and without the information, the record would be useless. Regarding website ERM, the information cannot be separated from the system in which it is created or maintained (i.e., printed to paper and preserved in a traditional filing system) because the context of the information is lost.

Official Records

In the federal context, official records are:

> Books, paper, maps, photographs, machine readable materials, or other documentary materials regardless of physical form or characteristics, made or received by an agency ... in connection with the transaction of public business and preserved or appropriate for preservation by that agency . . . as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the government or because of the informational value of data in them. (NARA 1993, 27)

Issues

Erlandsson (1996) discusses various definitions and views of records. He puts forth Richard Cox's position on what constitutes electronic records: Cox defines electronic records as "a transaction and as evidence of transactions [or a] product of a transaction" (Erlandsson, 1996b, 7). Cox's view of the context of records is presented: ". . . Records are the result of transactions that took place recently, or a very long time ago. To understand them, for the purpose of reconstructing a chain of events, for accountability, or for proof (evidence), much more than the pure textual content and its structure must be preserved" (p. 7). Websites fit well into this discussion of electronic

records, since a website's structure is an important part of how the information contained in the record is in relation to the rest of a website is crucial to obtaining a complete, clear picture of the record. Muller, Freith, and Fruin (1898), considered pioneers of the principles of provenance, define a record as "organizational evidence" (Erlandsson 1996c, p. 7).

Charles Dollar defines a record as "recorded information that comes to existence as a by-product of a transaction conducted by an organization or an individual and is evidence of that action" (Erlandsson 1996d, 28). O'Shea notes that the new Australian Archives definition of records is "that which is created and kept as evidence of agency or individual functions, activities and transactions. To be considered evidence a record must possess content, structure and context and be part of a recordkeeping system" (Erlandsson 1996e, 4). Erlandsson (1996f) notes that Duranti defines electronic records differently. Duranti does not base the definition on transaction or evidence, but rather defines an electronic record as "any record that is made or received and initially set aside in electronic form" (p. 26).

Erlandsson (1996) recounts a pointed commentary on the confusion among professionals on the Records Management Program (RECMGMT) listserv regarding whether or not there are records in databases. This discussion is directly applicable to website ERM, since a website is a type of database. The listserv discussion included important questions, such as "When is an electronic database a record? When it is created every hour? day? week? month? year? When it will never be updated (modified) again? Just when does a records manager secure a 'record copy' of a database" (p. 36). The questions were raised again at a conference where suggestions were made to capture records in databases when reports were generated: A "snapshot should be taken or it was stated that updated information in databases should be considered as disposable transitory records and only the database itself be considered a record" (p. 36).

The Records Management Task Force of the U.S. Department of Defense (DoD) states in a 1996 report regarding managing database information as records that its "policy memorandum establishes interim policy for the management of records produced from information maintained in electronic databases" (Department of Defense 1996, 39). In this instance a database is considered a record and creates more records "when information from it is assembled, retrieved, and developed into a product used to conduct government business" (p. 39).

Hedstrom and Blouin (1997) report the problems of "digital preservation" in different settings. One example concerns the officiality of records.

> A government official uses electronic mail to communicate with her advisors. The records of these consultations are not separated from trivial unofficial e-mail messages. At the end of each month, all e-mail messages are deleted. A controversy arises over one of her decisions and there are no records of how her decision was made or who may have influenced it. (p. 38)

This example indicates the need for policies regarding e-mail and official record status depending on content. NARA (1995b) has issued policies on the management of electronic records received through e-mail. Hedstrom and Blouin (1997) also note that one of the observations "common to the program development projects [is that] electronic records with enduring value must be identified early so that they can be protected for future use" (p. 6-7). Similarly, the original records and information created for websites are important to preserve for accountability and liability reasons.

The ICA (1996) defines an electronic record as "a record that is suitable for manipulation, transmission or processing by a digital computer" (p. 14). The ICA also discusses records in a database environment and how to distinguish records from information:

> On the one extreme you will find the view that databases just contain data or information that are not part of business transactions and which do not qualify as records. On the other hand there is the opinion that databases in general are the result of business activities and that they as such qualify as records, provided that the requirements of evidence are met. (p. 38)

According to ICA's *Guide*, the requirements are met "when the database provides evidence of business activities, which, *inter alia*, is depending on the recording of the necessary metadata and other contextual information in order to preserve and retrieve the content, structure and context of the record" (p. 38).

NARA (1996) states that the official definition of "Federal records" is taken from **44 U.S.C. 3301** to be "documentary materials, regardless of physical form, created or received during the course of Government business and that are kept to document Government organization, policies, and activities or because they contain information of value to the agency" (p. 5). Drafts of records may also qualify as official records. NARA later states that "electronic documents that are nonrecord materials should be maintained apart from the recordkeeping system" (p. 6).

In their discussion of a definition for record, Bantin and Bernbom (1996b) quote Bearman's definition of a record: "records are evidence of business transactions that document organizational functions and provide accountability" (p. 2).

Record is defined by the Models for Action project team at the Center for Technology in Government (CTG 1997) as "the complete set of documentation required to provide evidence of a business transaction" (p. 2). The CTG project team describes the rationale for the definition as being "built around the concept of 'business transaction' which provides a substantially better fit between the definition of a record and business process analysis concepts, and further, is more likely to be understood by a wide audience" (p. 2).

Requirements concerning the records themselves are discussed by Erlandsson (1996). Records must be comprehensive and document all business transactions, whether they occur between people, people and a computer/machine, or two or more machines. Records also must be identifiable, which is defined as "bounded by linkage to a transaction which used all the data in the record and only

that data" (p. 93). The requirement is that every record can be uniquely identified, that the data in the record all goes with one business transaction, and that records contain data regarding communications associated with a transaction.

Also concerning the records, Erlandsson (1996) includes completeness as part of functional requirements for recordkeeping. Complete records contain "the content, structure, and content generated by the transaction they document" (p. 94). The three factors that ensure completeness are accuracy, understandability, and meaningfulness. Accuracy refers to the quality of information that ensures that it correctly reflects the transaction being documented in the system. Accurate records are achieved through the use of data-capture practices and systems functions. For the record to be understood properly, the original meaning must be clear and understood. Understandability is achieved by maintaining presentation, relationships between records, and data about the record. Meaningfulness refers to "contextual linkages of records [that] must carry information necessary to correctly understand the transactions that created and used them" (p. 94). Meaningfulness includes maintaining business rules that tie transactions to functions, maintaining transactional source and time information about a record, and keeping data about connections between records and their relevant business activities.

NARA (1996) discusses the responsibility of deciding what is a record and what will be maintained. The authors note that "in many instances, the End-User is responsible for determining which Documents are records and for ensuring that the records are maintained in a Recordkeeping System--an office file or electronic recordkeeping system--so they will be available to other staff and established records management controls, including disposition, can be exercised" (p. 3).

Are websites databases? Thomas Norris of the New York State Archives and Records Administration asserts:, "a database that is required to supply evidence in audits or legal actions will need to be constructed and managed in such a way as to ensure admissibility in and availability for those proceedings" (Erlandsson 1996g, 37). This quote comes in the context of a discussion about data that are records in a database versus data that are information in a database. This distinction between records and information is also applicable to items on websites.

Analysis

Cox (1996) defines electronic records as transactions that serve as evidence of transactions. Definitions of a record or official record are communicated by the presence of three terms: organization, evidence, and transaction (according to O'Shea, quoted in Erlandsson 1996c). This definition of a record could substitute the terms structure, content, and context for the terms organization, evidence, and transaction. Website electronic records may serve as evidence of an organization's mission, policies, and services that are the result of transactions between persons both within and outside the organization. The copy of a policy on a website is, therefore, a record. The fact that the policy is on a website and can be viewed by a client of the organization indicates that another transaction has taken place, this time between the organization and the client. The website would therefore be a record in itself. O'Shea (1996) notes that for a record to be used as evidence,

the content, context, and structure must be preserved. This concept of evidence requires that records on websites remain in website format in order to be useful as evidence, should the need arise. Because of hypertext, website records must be maintained in electronic format to be used as evidence. Print and electronic records have different characteristics, but these are irrelevant when considering the officiality of a record, because the content of the record is the same.

Electronic mail is an issue related to website ERM because of the interactive communicative nature of the e-mail link on websites. It is often a mode of feedback for information on the site. The most problematic issue about e-mail is determining when it is an official record that must be preserved for accountability and liability reasons. If official business is transacted via e-mail, then the answer to the question whether or not to save it is obvious. Many of the issues that concern ERM are applicable to e-mail and websites alike.

Whether or not there are records in databases or if the databases themselves are records are also important issues. It appears that a website is a type of database, and the issues are similar and transferable to websites. Depending on the purpose of a database or a website, evidence of organizational transactions may be provided. If organizational transactions are captured and documentation is used to provide evidence, then it should be handled with care and preserved for future use. The question of when is the database a record is contentious (Erlandsson 1996). The database or website becomes a record when it is created, and every time the database or website is updated or modified, the new version also become a record that accordingly needs to be preserved as evidence. If one part of the database or website is altered, it may be wise to preserve a whole new copy of it in its entirety to ensure that a complete picture is taken at one point in time. A 1995 U.S. DoD memorandum states that a database is a record that creates subsequent records used as products to conduct the business of government organizations (Erlandsson 1996h). As a database, websites also "create" or provide other records used to serve government clients.

E-mail is another area of concern when defining official records. An e-mail message is a record when it provides evidence of organizational transactions; it should be preserved accordingly and protected by policies that indicate what kinds of e-mail must be preserved. NARA (1995b) places responsibility on agencies to "take appropriate action to ensure that all staff are capable of identifying Federal records" and states that "for electronic mail systems, agencies shall ensure that all staff are informed of the potential record status of messages, transmittal and receipt data, directories, and distribution lists" (p. 44640). The types of e-mail that must be preserved include evidence of the organization's transactions. When considering the importance of context, structure, and content, the entire series of e-mail surrounding one message that contains the evidence of a transaction must be preserved to ensure that meaning can be correctly interpreted. The context of e-mail messages is comparable to a link on a website, because if the link is referred to but not accessible, the context is not preserved. An e-mail series is comparable to the website, and the e-mail containing the transaction is comparable to the link.

Records Integrity (Including Security and Authenticity Considerations)

Records integrity pertains to ensuring that records in official format are unaltered in any way by unauthorized persons. The security of records means ensuring that only authorized persons can access records. The authenticity of records refers to the degree to which the context of records is unaltered and the record is in its official format.

Issues

The literature review examined the integrity of records. The review included integrity, security and authenticity, taken together, because the concepts are intertwined.

Schorr and Stolfo (1997) claim that "privacy, security and trust are critical elements in the relationship between Government and the public" (p. 11). Governments must permit and encourage extensive public access to official records; hence, they must build in privacy and security guarantees for records that promote public trust in the ways records are handled and stored. These conditions are especially true for governments conducting business on websites.

Phillips (1995) also discusses issues regarding integrity of electronic records. A disadvantage of electronic information available to the public is that not all information is "intended for immediate public review or scrutiny" (p. 42) A formal information control or authorization process is needed, lest an organization have quality control problems concerning published information. Responsibility for electronic journals or data must be taken by publishers, just as it is with paper documentation regarding "accuracy, relevance, timeliness, quality and liability" (p. 42). Security and the ease of electronic documentation manipulation are also cited as issues plaguing ERM and are applicable to the more specific area of website records management.

The issue of security of electronic information, notes Motz (1996), is a problem with the use of the Internet, since hackers may be able to obtain information intended for "internal" use as well as information published on publicly accessible websites. However, she also indicates that because information equals knowledge and knowledge equals power, accurate, timely, external (interpreted as authorized, releasable) information available on the Internet can provide a dramatic power surge for organizations that use this resource to their advantage.

NARA (1996) states that security of a recordkeeping system is a requirement for maintaining records. Security is needed to ensure that access to records for indexing and other management functions is limited to authorized persons. The document states: "The system should enable only authorized personnel to gain access to system functions and to the records in the systems" (p. 8). NARA demonstrates the interrelatedness of security and integrity by placing the two topics one after the other in the draft and stating: "The system must protect the integrity of Federal records" (p. 8). The systems must ensure that the records are not altered, that when authorized alterations are made, changes are recorded and linked to the original record. A question then may arise as to which record is the "official" version.

The ICA Committee on Electronic Records (1996) notes that "organizations that already rely on electronic records to conduct and document business or that are interested in eliminating paper records from their systems are seeking solutions to issues of authenticity, management, and retention of electronic records" (p. 67). Governments whose websites are used to disseminate records to the public should be included in this statement.

The ICA Committee on Electronic Records (1996) defines authenticity, as well as reliability, and discusses these terms in relation to records as evidence. "Authenticity means a record is what it purports to be," the authors note, and "reliability refers to the authority and trustworthiness of records as evidence (i.e., their ability to stand for the facts)" (p. 13). Content, context, and structure of records are requirements for authenticity and reliability, according to the committee, which also notes that records must be kept "in an available, understandable and usable manner" (p. 13).

Authenticity is also a functional requirement for recordkeeping concerning records (Erlandsson 1996). Authentic records are described as originating with an authorized records creator. Each document created must include data about the authorized creator, and the individual must be authorized to conduct the business transaction documented in the record. The system maintains a "knowledge base" of people authorized to conduct specific kinds of transactions and uses the information as a control of authority.

Hedstrom and Blouin (1997) discuss the NHPRC projects in which integrity and authenticity are noted to be valuable characteristics:

> Projects have produced conceptual models that define what it takes to create electronic records that are reliable and authentic and that can be preserved. Most of the research on this problem focused on the organization, structure, and description . . . for electronic records that make it possible to store electronic records and retrieve them at a later date with assurance that the records have not been altered. (p. 5)

Websites as electronic records require the same considerations, especially in light of the increasing use of this medium.

A project of the University of British Columbia (UBC) has the goal of identifying "the best methods for preserving the reliability and authenticity of electronic records over time on the basis of diplomatics and archival theory" (Hedstrom 1997, 30), and the DoD used the findings of this project extensively in establishing the DoD's models for ERM.

"The UBC project uses the life cycle of managerial activity to divide preservation of the integrity of electronic records into two phases: one directed to the control and maintenance of reliable active records and the other directed to the preservaton of authentic inactive records theory" (Hedstrom 1997, 34). This description of dividing preservation touches on the issue of active and inactive records, and archivists becoming involved with setting standards and designing systems to handle electronic management of electronic records from the creation to the disposition stages.

ICA (1996) reports that the migration process, transferal of records from one system to another, involved with preservation is expensive and "may require substantial changes to the structure and format of the records that comprise their integrity as evidence" (p. 8). The Memorandum of Understanding (MOU) (Library Programs Service 1997) signed by the Government Printing Office (GPO), Department of State and University of Illinois at Chicago (UIC) acknowledges the importance of records integrity by including the requirement that the university shall "provide measures to secure the integrity of the DOSFAN [Department of State Foreign Affairs Network] Electronic Research Collection, such as through the maintenance of a firewall, which will assure that the informational content is not modified or reconstituted" (p. 3).

Analysis

The literature reviewed discusses the integrity of records in terms of security and authenticity. government information available on websites must be secure and authentic, and have integrity. These terms all refer to the quality of not being corrupted or altered by unauthorized persons. Security and trust are crucial to the government-public relationship. It is most important that when a citizen goes to a government website, he or she can be sure that the information is as official and authentic as a document received directly from the agency via the mail or in person, and has not been altered in any way.

Information on websites is normally an indication of authenticity because the URL indicates the organization whose server is publishing information. However, because of the risk of unauthorized persons altering information on websites, precautions must be taken to ensure authenticity. Content, context, and structure are the criteria of authentic records. Context and structure indicate that websites must be in electronic format to be authentic, otherwise the context will be altered due to the unavailability of the hypertext links. Authenticity also indicates the distinction between persons who are authorized to alter information and persons who are not. Information on who alters records must be kept to provide evidence of authenticity.

Hedstrom (1997) notes the possibility of separating active and inactive records to ensure their integrity. In a website ERM environment, this means removing outdated websites or information from the server and managing them separately. The organization would provide security for websites online and separate security for websites preserved offline for evidential purposes.

Integrity of records is an issue when considering migration to newer systems. With websites written in hypertext markup language (HTML), migration of records may be easier to conduct than migration of traditional electronic records. This is true since the source documents are usually saved as ASCII or text only, because the structure is provided in the HTML "tags." The structure and format are built into the HTML coded record, potentially making it easier to ensure the integrity of websites than the integrity of other electronic records that rely on software for structure and formatting. Websites must be password protected and secured by firewalls to ensure that unauthorized persons do not gain access to unauthorized information or alter records.

Versions of the Records

Versions of the records means identification of the original, updated, and corrected records in electronic, print, and other formats.

Issues

Erlandsson (1996) quotes Richard Cox's discussion of versions and observes that the definition of a record raises issues about versions and which version is the record. Cox asks, "Is my record version one of my memorandum drafted for initial review, the second version sent to its intended audience, or the third version which has been modified by the recipient as he included the memorandum into a report? Or, are all three records?" (p. 6). Cox asks about various different electronic technologies and their status as records. The answer to the questions about which version is a record has a two-pronged answer: the definition of record as "the product of a transaction," and a statement that "electronic information that is not the result of a transaction does not qualify as a record, but rather constitutes a body of text created for a different purpose" (p. 7).

The ICA (1996) discusses records created as a result of updating or retrieving information from a database. The system in which the database resides would create records to document changes made:

> An updating transaction can be recorded by means of an automatic logging function in the system, and thus create a record that provides evidence of the transaction. The content of such a record would typically be as follows: the information that was deleted and the information that replaced it, date and time of the transaction, initials of responsible officer, etc. This kind of record can be stored in an integral part of the database system, or it may be stored separately, for instance as an "historical file." (p. 38-39)

The authors state that "databases should be scheduled comprehensively--that is, the entire database system, including inputs, outputs and necessary metadata and documentation should be scheduled together" (ICA 1996, 39). The *Guide* also discusses change to the database and complexity:

> The retention of database records is complex because both the structures and the data (content) can be changed over time. When either the data contents or the structure of a database is changed, the record is altered. Such alterations are necessary and proper, if the database is to serve as an effective tool in the conduct of business. (p. 39).

NARA, noting that versions of a record may all be records, depending on their role in documenting organizational activities, states, "In some cases interim or final drafts or working materials may also be records if they are needed to adequately document agency functions or activities or explain major policy decisions" (NARA 1996, 5).

On the subject of having appropriate and timely information available on organizations' websites, the World Wide Web Federal Consortium (1996) notes that a decision must be made "by the party responsible for the document" whether or not to retain an electronic copy of the outdated one (p. 9). It is valuable to do so not only for liability purposes, but also for website design reference.

NARA (1996) reports that it is important to have the ability to link new records to older records or to original versions in order to maintain the context for records. The document states:

> Another important element that must be included in electronic recordkeeping systems is the ability for users to identify and link supporting and related record information such as notes, marginalia, attachments, and electronic mail receipts with the relevant documents .... It is essential, therefore, that these be linked to the related records. Without these links, electronic documentation may not provide an accurate and complete record of agency activities. (p. 6)

These statements may be applicable to website electronic records if the records are preserved in their hypertext form, since links may more readily be preservable.

Analysis

The question of which version of a record is the official version refers back to a transaction, or an exchange of decision-causing information or services. The most recent transaction involving the record's development seem logically to be the one most likely to be the official record, as long as any modifications were made by authorized persons in the organization. Every version of a website, however, may be a record, because information was transferred from the organization to the public in a specific format and context that must be preserved as evidence of exactly what was available at a specific point in time. Because websites are constantly updated to provide timely and appropriate information, every version of the website may be a record of which organizations might maintain an electronic copy for reference should legal problems or liability arise.

Electronic Records Disposition

Electronic records disposition refers to action taken for records not needed for current business (NARA 1993).

Issues

NARA (1996) addresses disposition of electronic records in an electronic recordkeeping system: "At appropriate intervals the systems should produce a report or permit an authorized staff member to request a report listing the disposition status of records" (p. 10). Authorization from officials is needed for records to be scheduled for disposition; it should not occur automatically. An audit trail also must be kept to indicate exactly which records are destroyed, transferred, and kept.

The MOU (Library Programs Service 1997) states that disposition of records will be handled by the GPO and UIC collectively. The MOU indicates that the GPO is required to "work with the UIC Library as a FDLP [Federal Depository Library Program] partner to identify segments of the DOSFAN Electronic Research Collection to which access may be discontinued, such as when new information supersedes older material" (p. 3).

Wire (1992) states that "along with data processing and telecommunications, records management is an integral part of information resources management" and that "IRM is concerned with the creation, maintenance and use, and disposition of information as well as with related resources, or assets, such as personnel, equipment, funds, and technology" (p. I-1). Disposition is thus part of the IRM context as well as of the information life cycle. Disposition is "an integral part of records management and is the third and final stage of the life cycle of records" (p. I-2).

Wire (1992) notes the meaning of disposition and contrasts it to disposal. He states, "Disposition is a comprehensive term that includes destruction as well as other actions, such as the transfer of permanent records to the National Archives" (p. I-3). Wire points out that "'disposal' in Federal usage refers to only those final actions taken regarding temporary records after their retention periods expire" (p. I-3). A records disposition program is defined as "those policies and practices designed to achieve effective and efficient disposition by scheduling all records; ensuring their proper storage, whether in agency or FRC [Federal Records Center] space; ensuring the authorized and prompt disposal of temporary records; and ensuring the timely transfer of permanent records to the National Archives" (p. I-3).

Wire (1992) states: "A records disposition program provides for the effective and efficient management of records no longer needed in office space to conduct current business" (p. I-4). He also identifies the three main objectives of a records disposition program:

> prompt disposal of temporary records whose authorized retention periods have expired, the timely and systematic transfer to economical storage of records no longer needed in office space but not yet eligible for final disposition, and the identification and transfer of permanent records to the National Archives for preservation and for reference and research use. (p. I-4).

Analysis

Just as traditional records are appraised and scheduled for disposition, so too must website electronic records be appraised and scheduled. The appraisal should be conducted at the time of creation by the records manager and person authorizing the information to be published on the website. Disposition of website electronic records refers to the destruction of the electronic file containing a website or version of a website. For liability purposes, after records have been replaced by an updated version, website electronic records may be maintained on the organization's server for a "reasonable" duration in case problems arise in reference to older versions. Disposition depends on how often the website is updated and how much information is on the website initially. If an

organization identifies a discrepancy with a particular version of a website, it would behoove the organization to preserve that electronic version for a longer period of time (permanently) in order to provide an accurate account of what occurred.

Another issue regarding disposition is whether website electronic records should be sent to permanent storage or scheduled for destruction. This decision is based on the value of the information and future needs determined when the information is appraised. It is in an agency's best interest to preserve permanently electronic copies of websites, because they are evidence of what information in a specific format was provided to the public via the World Wide Web in a particular range of time.

Liability

Liability refers to legal and other obligations for the management, use and disposition of official records.

Issues

Hedstrom and Blouin (1997) give an example of a liability issue regarding the reliability of records and the need for reliable records if legal proof is needed. This example is important to both electronic and website records management because of the changing nature of technologies: "A corporate attorney . . . uncertain about the longevity and reliability of vital business records . . . advises his firm to maintain costly shadow paper records systems in case reliable records are needed for audit or legal purposes" (p. 2).

Hedstrom and Blouin (1997) also identify the need for the archival community "to raise awareness of both the problems and solutions to electronic records preservation among a broad group of stakeholders" (p. 14). Among these stakeholders--or perhaps a more appropriate term is users--are "private and public organizations that need reliable electronic records either to enforce regulations or demonstrate compliance with them" (p. 15).

The Pittsburgh Project has designed a model with "functional requirements with evidence in recordkeeping on three levels" (Hedstrom and Blouin 1997, 28). The first of the three levels is liability, or the legal level requiring "a Conscientious Organization that complies with legal and administrative requirements for recordkeeping in the jurisdictions in which it operates and which demonstrates awareness of the best practices for the industry or business sector to which it belongs" (p. 28). This first level deals with liability issues because of the legal concerns of recordkeeping, but it also goes further, to integrate the recordkeeping process with the organizational culture.

The ICA (1996) discusses the authenticity of electronic records and liability situations. The authors note that electronic records are easily manipulated, which causes them to be weak evidence in court; this situation can increase an organization's liability. To counter the liability problem, assert the authors:

> Progress on these issues can only be made if information systems are designed to keep reliable and secure evidence of all business transactions and if organizations implement policies, procedures, and training for staff in this area. Special means have to be taken and international regulations have to be established in order to ensure authenticity of information transmitted via public networks like the Internet. (p. 10).

Even though this statement does not include a solution to the problem, the identification of the problem is helpful in itself.

Analysis

Liability relates directly to evidence needed to protect an agency. An organization may be liable for the information it provides in electronic format on the World Wide Web, just as it is liable for information sent directly to the public in paper formats. One reason for maintaining and preserving records, whether electronic or paper, is to provide evidence of organizational transactions for which the organization is liable. The organization is responsible for acting in accordance with legal requirements, and the records kept provide evidence of actions taken.

Electronic records are sometimes not accepted as evidence in liability cases because of authenticity issues. Metadata, data captured about the electronic record, completes the record; metadata provides information as to when the record was updated, by whom, what information was changed, etc., and contributes to the trustworthiness of the record. Also, if a website electronic record is maintained in electronic form, the links provided in the record contribute to the evidential nature of the document because provenance information has been preserved.

Access and Retrieval

Access and retrieval refers to the process of obtaining records stored in a computerized system through the use of search software.

Issues

Access to information and retrieval of electronic records are topics often discussed in conjunction with other topics, such as preservation, metadata, or migration. Schorr and Stolfo (1997) note that a "Digital Government will allow public access to Government information and services, and group participation in discussions at any time and from anywhere on the globe with the required security and trust." Access and retrieval are a large part of the Digital Libraries Initiative, on which the Advanced Research Projects Agency (ARPA), National Aeronautics and Space Administration (NASA), and National Science Foundation (NSF) are working together to develop new technologies to advance the way information is collected, stored, and organized and "to make it available for searching, retrieving, and processing via communication networks, all in user-friendly ways" (p. 10).

Schorr and Stolfo (1997) focus on access issues relating to security and privacy of personal information available through the Web. One of the study's suggestions to the U.S. government is to increase system security so the public can use the Internet to conduct government business online (Macavinta 1996).

Hedstrom and Blouin present an example of an accessibility issue concerning digital preservation:

> a legal action . . . brought by an employee against an organization and the court orders discovery of all e-mail in the organization in which the employee's name or electronic address appears in the text or distribution list. The organization lacks the necessary software to comply with the court order and must pay the enormous costs of doing a massive manual search or, alternatively, turning all e-mail over to the plaintiff, opening up a great fishing expedition. (p. 3)

Although the number of website records may not be as great as the number of as e-mail records, the access and retrieval of such records in a timely manner is still an important issue.

Hedstrom and Blouin (1997) note that participants at the 1996 Electronic Records Conference suggested areas in which technical solutions are needed regarding long-term preservation. One such area is migration, particularly the need for better approaches to migration. Hedstrom and Blouin also state:

> The Task Force on Preservation of Digital Information also identified several areas for further research including storage and preservation of very large holdings of culturally valuable information, the use of metadata in digital preservation, and strategies for migrating digital information from obsolete to current technologies. (pp. 10-11).

Erlandsson (1996) addresses the idea of information locators as virtual archives. He asserts that an "'information locator system' or directory service will be needed in order for the public to locate and access public records kept in originating agencies and/or archival institutions" (p. 73). He refers to two standards, Z39.50 and X.500, and notes that the Internet serves as a kind of locator, although it is not specific to archival records. The limitations of the browser and search engine are also important to note. An example of an information locator service is the U.S. Government Information Locator Service (GILS). NARA (1996) compares GILS to the card catalog in a library used to locate materials. GILS does not provide the materials, but instead it tells the user what information is available and where the information can be found. But a major recommendation from an evaluation of federal agency implementation of GILS is that records management responsibilities should not be included as part of GILS (Moen and McClure 1997).

The ICA Committee on Electronic Records (1996) notes that technologies exist that allow electronic records to be accessed and used from remote locations so that "neither the archivist nor the researcher needs to be at the same site as the records" (p. 19). Other issues to be considered are

custody and noncustody of the records, and security. The committee's report also discusses the two sides of access, supply and demand. The supply side of access is "determined and fixed [while the demand for access is] highly variable" (p. 27). The authors suggest that information technology is the main source of influence in the demand for access to archival records prompted by faster and more flexible retrieval tools.

The committee states, "The prerequisite for providing access to archival electronic records is to take adequate and appropriate preservation actions to ensure that the records remain available, accessible, and understandable" (p. 46). The records must be accessible in the original content, structure, and context in order to be authentic. Intellectual control is identified as a means of ensuring continued "accessibility of the records by identifying and describing them," which in turn "defines the requirements for access to authentic records" (p. 47). Metadata and contextual information should be included in descriptions of electronic records. The authors state, "Enabling users to identify what records exist, to determine the relevance of the records to their interests, and to access and understand the records requires intellectual control and description of the content, context, and structure of the records" (p. 47).

The committee (ICA 1996) notes three methods of providing access to electronic records once they have been migrated to other systems. The options include (1) copying the records onto magnetic tape, digital media, floppy disk, CD-ROM, paper, or other media, (2) then using telecommunications technology to deliver them, and also (3) providing online access to records.

NARA's 1996 Draft discusses indexing and retrieval in terms of accessing records in the maintenance and use stage of the record's life cycle. The authors note that classification is needed because unindexed, full-text searches retrieve too many irrelevant records and fail to retrieve relevant records that do not have the specific search term in them. The Draft states that "in order to optimize the benefits from electronic recordkeeping in support of agency mission and administrative functions, records should be linked, classified, and indexed to ensure that, at any stage of a process, all the information that is needed from the files, and only that information is retrieved" (p. 7). The Draft also mentions the need for numerous users to be able to access records at the same time and for taking early advantage of Internet and Web technologies. "This experience has raised expectations and interest that the Government further utilize technological advances to improve operations and services delivery" (Schorr and Stolfo 1997, 8).

Gauder and Wagner (1997) discuss a company called Preservation Resources and its focus on digital access preservation microfilming. Preservation Resources preserves materials first by creating microfilms, then scanning the microfilm to allow the material to be digitally stored, organized, and accessed. The article notes the benefits of the first step in the process to the long life of microfilm (500 years) if properly processed and stored. Preservation Resources also creates custom indexes for scanned images using technology that is of interest to government agencies because government documents on the Internet must have search capabilities and back-up documentation.

Access is a key issue for websites as noted in the MOU (Library Programs Service 1997)among the GPO, UIC and the State Department. UIC must provide access to the DOSFAN collection, which includes technical support, provision of unlimited access to all at no cost, and server requirements that include ensuring simultaneous remote access for five users, and availability of the collection 95 percent of the time. UIC must assure "that Internet addresses for files within the DOSFAN Electronic Research Collection are persistent, regardless of the relocation or renaming of files" (p. 2). In practice, however, this maintenance is not performed. The issue of URLs staying the same is important to accessibility of records. GPO is involved with accessibility as it ensures that information is accessible through the DOSFAN Collection and the active DOSFAN website by providing "Internet pointers and other locator mechanisms located on the GPO Access World Wide Web site" (p. 3).

Analysis

Much literature is available and reviewed about accessing website electronic records and retrieving information from the websites, but little discussion has been published on the accessibility of websites specifically. It is important that the websites be available, in the sense that the server housing the website is available constantly, with the exception of scheduled downtime for maintenance. It is also important that a good search engine be available on the website to aid searchers. Identifying and describing the records available clearly on a website is part of making the records

Once an organization's website is accessible via the World Wide Web, the user must be able to access the particular piece of information needed. Therefore, in the design stages before the website is accessible, an agency must be concerned with access and retrieval of information and how record searches will be conducted. The Web provides a unique platform for access and retrieval because users can search for the needed information and link directly to it. Users must be able to search the website as a database, otherwise the website must be browsed and trial and error used, which can be time consuming and frustrating. While GILS is a valuable search tool, at present it does not link the search directly to information needed; rather, it points users to where they can find the information. It is better to link directly to the information, since hypertext capabilities are available.

Accountability

Accountability, as used in this chapter, refers to the ability to reconstruct an accurate picture of the past through records that can be used as evidence.

Issues

Erlandsson (1996) notes that Cox and others working with the State Archives of Vermont define accountability as the provision of "evidence so that the public can ensure that government carried out its responsibilities by ensuring (with due regard for their public trust) that its decisions,

actions, and transactions are and were consistent with and supportive of legislative, regulatory, policy, procedures, and best practices" (p. 21).

In the article "Electronic Recordkeeping in Western Australian Public Sector Agencies: An Assessment" (Public Recordkeeping Research Group [PRRG] 1996), the authors discuss accountability in government in terms of developing systems of accountability. Emy and Hughes are quoted in the article: "If the special goal of nineteenth century radicals was to broaden the franchise and create representative democracy, the equivalent problem in the later twentieth century is to devise more effective systems of accountability in the face of growing executive and administrative powers" (p. 2). The authors formulate a process of accountability, about which they state, "Focusing on the issue of information, we can see that virtually all the processes of accountability depend upon accurate, reliable and authentic information" (p. 3).

Functional requirements established as a product of the Pittsburgh Project inform electronic records managers and archivists managing electronic systems of what must be included in the systems to "identify, preserve and manage organizational records in order to provide evidence of transactions and accountability requirements" (Erlandsson 1996, 23). Bearman (Erlandsson 1996i) points out that archivists and records managers must communicate their functional requirements to electronic systems managers of information and records in order that those managers will make the appropriate decisions to satisfy archival and records management needs through the electronic systems.

ICA (1996) defines and discusses records in terms of an organization's accountability:

> A record must be related to an activity carried out by a corporate body, an institution, agency, company, etc. or by any individual . . . . All organizations require records of their business functions in order to continue their operations, to satisfy program needs, and to meet administrative and legal requirements. Within this context, the main purpose of records creation and record keeping is to provide evidence. (p. 13)

The discussion of records as evidence identifies accountability as a goal: "Evidence of activities and transactions is needed for the accountability of a corporate body or an individual." (p. 13)

The issue of accountability that the IRS faces regarding its paper records management is relevant to ERM as well as website records management. Locy's (1997) discussion of the IRS's failure to identify and protect records of historical importance properly illustrates the problems agencies may have when they fail to record this life cycle. A lawsuit has been filed against the IRS as a result of the gap in documentation in the 1890s, 1910s, and 1940s. There is also no records management program at IRS headquarters. Locy cites the IRS's and NARA's failure to comply with the Federal Records Act, which "requires all federal agencies to turn over all historically significant documents" (p. A19).

Hedstrom and Blouin (1997) state that "in business and government, the transition to electronic data interchange and paperless office systems is hampered by a legitimate lack of trust in

the reliability and permanence of electronic records" (p. 3) and that "efforts to make government more accessible by distributing government information in electronic form may diminish the accountability of public officials, if official communications are not preserved" (p.3-4). An example of a problem regarding accountability also illustrates the need for e-mail to be preserved systematically when identified as official records: "Senior managers in an organization routinely use e-mail to notify their staff and other managers of travel plans and to designate who is to act for them in their absence. These records are routinely purged with other e-mail, making it impossible subsequently to reconstruct who was in charge when key decisions were made" (p. 3). Just as e-mail messages are official records and must be captured and preserved, so must records on websites be preserved if they contain evidence of government functions and decisions in order to indicate that correct decisions were made and those individuals held accountable for decisions are able to provide documentation of the process and outcome.

Accountability is also a concern of the second level of a model produced by the Pittsburgh Project with functional requirements for evidence in recordkeeping. The focus is on systems that manage electronic records:

> The second level requires Accountable Recordkeeping Systems with policies, assigned responsibility, and formal methodologies for their management and accurate and complete documentation. Accountable recordkeeping systems must be used at all times in the normal course of business and they must process information in a manner that assures the records they create are credible. (Hedstrom 1997, 28-29)

Accountability would be built into these systems by utilizing metadata and involving persons and groups at different levels of the agency and at different stages of the electronic records life cycle.

In a discussion of program objectives, Hedstrom (1997) notes that "most archival programs . . . have become engaged in the development of policies and the design of systems to ensure that adequate electronic records are created in the first instance and that the records will remain accessible as long as they have continuing value" (p. 32). Hedstrom also points to the importance of records creation and system design on accessibility. Just as the IRS is facing court action, other organizations are realizing the importance of records and public accountability.

Bantin and Bernbom (1996a) identify the kind of information needed for evidence. Data (content), context, and structure are identified as providing evidence of a transaction. The functional requirements for completeness of records as determined by the Pittsburgh Project-- accurate, understandable, and meaningful--are discussed. "Sufficient" is identified as a fourth element required for completeness and is defined as "a requirement that the record must contain the information needed to represent the business-relevant facts about the transaction--the official action, the actors, and the objects acted upon--and to uniquely identify each" (p. 7). Bantin and Bernbom find that "analysis of functions and transactions is a more accurate and useful indicator of record creation and use than the examination of organizational structure" (p. 9).

Analysis

Organizations and employees must be accountable for records and the decisions those records document, thus the need for transaction logs. Accountability refers to the records and the degree to which they are reliable, accurate, and authentic. Accountability is an important characteristic for records to have, but the issue seems to rest in the procedures and policies that allow records to be accounted for by the organization.

The issue of accountability refers also to the ability to reconstruct the past development and evolution of a transaction. In this sense, managers of website electronic records must be accountable for the information placed on websites and be able to reproduce a website as it was at any given point in time upon demand. This is part of documenting the organization's history. Webmasters must acknowledge that websites have permanent value as records unto themselves and preserve them to illustrate accountability.

Accuracy

Accuracy is the degree to which records conform to truth or fact.

Issues

Information on a website must be accurate. The World Wide Web Federal Consortium (1996) stresses the need for accuracy of website content because users may base important decisions on the information provided. The consortium asserts that inaccuracies in structure may impact the meaning of the information and therefore misdirect the user of such information. The consortium also identifies syntax, spelling, and accuracy of links as accuracy issues that must be addressed. Liability is another issue that is affected by the level of accuracy.

Analysis

Accuracy of websites involves the content of the information as well as the structure, because both qualities alter meaning and can impact user reaction. Accuracy of information contained on websites must ensure authenticity, thus pointing to the need for the websites to be preserved electronically. Inaccurate information can cause legal and public relations problems for government agencies and departments. Information must be checked for accuracy of content, context, and structure to ensure proper service to the organization's customers.

Appropriateness and Timeliness

Appropriateness and timeliness refers to the degree to which information or records on a website are current, and support the mission of the agency

Issues

Information presented on an agency's website should be the latest information available and consistent with the agency's mission and objectives. According to the World Wide Web Federal Consortium (1996, 9), effective customer service and the credibility of an agency's public access Internet sites depend on providing information that is up-to-date. The consortium recommends that time-sensitive information must be handled by putting up information promptly, as well as by taking old information off the website once its usefulness has passed and that a date on which information was last updated should also be included on a website on each page.

Analysis

Materials appropriate for a website vary according to the agency's mission. If material is not appropriate to the organization's mission the user may be misled. Inappropriate material decreases the value of a website.

Timeliness is another criterion crucial to website materials' value. Because the World Wide Web is a fast publishing tool and can be accessed immediately by users, information must be updated frequently and old, outdated information removed immediately. To communicate to users when information was last updated, the date of the last update should be placed at the end of each record. It may be useful for webmasters to indicate, at the time the information is updated, the date the information will be ready for removal or updating, in the same manner one states the disposition schedule for other electronic records.

Use of Disclaimers

Use of disclaimers means the use of statements declining responsibility for certain aspects or actions related to a record, link, or other area of concern

Issues

The World Wide Web Federal Consortium (1996) recommends that websites publish disclaimers. They note two kinds of disclaimers: disclaimers of liability and disclaimers of endorsement. Disclaimers offer means to explain to users the purpose of references to commercially available products or services, and the limits of the organization's responsibility in terms of the website mention. Such disclaimers raise questions as to the degree to which a website of a government agency can disavow responsibilities for aspects or content on that website.

Analysis

The literature provides little information or discussion of website disclaimers. However, some agencies and organizations have disclaimers on their websites. It is interesting that the disclaimers usually state that the agency or organization is not responsible for the content of information found on their websites, which contradicts the idea that information on a website is there to be used by and to serve the organization's customers. If the organization is not responsible or liable for the information, how can the customer use the information to make a decision or take action? A disclaimer, as recommended by the World Wide Web Federal Consortium (1996), is a kind of protection for the agency, but how much protection should an agency have? If any protection is needed, the question then is protection from whom? The disclaimer casts doubts in the mind of the user as to the authenticity and accuracy of the information, and may even cause frustration because time has been spent viewing information for which the agency states they will not take full responsibility.

External Links

External links mean links on a website to nonstate or nonagency websites under another organization's control and maintenance.

Issues

The World Wide Web Federal Consortium (1996) indicates that links to sites managed by outside organizations must match the organization's mission and objectives as well as be relevant to the document in which the link is found. The link should include the name and URL for the site; this information is valuable because it provides enough information to allow the user to make an informed decision about the value of the link and whether or not to use the link. The consortium stresses the importance that guidelines be developed for selecting and maintaining links to external organizations and that external links provide the opportunity to add value to an agency's website if used appropriately (p. 11). A relevant question to ask is, do agencies have responsibility for ERM of such items and, if yes, what exactly are they responsible for?

Analysis

Links to sites outside the agency's website are like endorsements and advertisements. External links must match the organization's mission and serve the agency's customer. By their presence on an organization's website, external links are endorsements of a product or service and therefore must be chosen carefully. The links also must be maintained to ensure that links to "dead ends" are removed.

Maintenance of Website Electronic Records Management Systems

Maintenance of website ERM systems refers to the availability of systems to aid in maintaining and preserving electronic records electronically

Issues

Sprehe (1997c) cites the Office of Thrift Supervision as the only federal agency that has devised and implemented an ERM policy that is conducted electronically. He discusses the DoD Design Criteria Standard for Records Management Application Functional Baseline Requirements (<http://www.dtic.mil/c3i/recmgmt.html>), which is a standard designed to indicate if a software system manages electronic records. To date no system meets that standard, although systems used by the Canadian and Australian governments come close. Sprehe notes the persistent issue that there must be clarification as to what is and what is not information worth saving. If NARA and the outcome of current federal court litigation mandate that electronic records must be managed electronically, no system can accommodate the standard proposed by the DoD.

Analysis

With the exception of *World Wide Web Home Page Guidelines and Best Practices* (World Wide Web Federal Consortium 1996), the literature does not address website maintenance per se, but rather the maintenance of general ERM systems, the basic principles and practices of which may be applicable to websites. Website maintenance, which includes updating items and removing old materials, is crucial to an organization's presentation. Because the environment in which agencies operate is dynamic, so is the agency. A website must reflect the agency and change with it. Accuracy, appropriateness, and timeliness are relevant issues when considering maintenance of an agency's website.maintaining old versions of the website once they are in temporary or permanent storage.

No literature was found that addresses endorsements and advertisements on agency websites. These elements do not appear to belong on an agency's websites unless, however, they are central to the organization's mission. One should consider the organization's other means of publishing information and whether or not endorsements and advertisements are included in those media when deciding on what is appropriate in a website environment.

Releasability refers to the process information must undergo before it is published on an agency's website. The information must be authorized by the appropriate person(s) to be released. This concept is applicable to all formats of records to be distributed, whether it be paper, e-mail, websites, or other electronic format. The World Wide Web Federal Consortium (1996) makes some very good recommendations regarding how to handle the release of information on websites. A most valuable indication regarding the release of information on websites is that it is a substitute for print materials, and that the information (regardless of format) should be released at the same time.

Webmasters and those who authorize the release of information must be in close communication to ensure that information is properly authorized and released.

Metadata

Metadata is information about who, where, when, why and how a record or document was created and updated.

Issues

Metadata has become increasingly important in federal records management in recent years. The litigation in federal courts since 1990 concerning the electronic records involved in the so-called Iran-Contra scandal resulted in court orders directly pertinent to metadata. In essence, the court decreed--and NARA government-wide regulations subsequently stipulated--that, when e-mail messages rise to the level of records, agencies must include as part of the record not only the contents of the messages but also the metadata detailing who were the author and recipients of the messages, when they were sent and when received or read.

Schorr and Stolfo (1997) discuss metadata as a means of ensuring accountability for the data and knowledge an agency collects and warehouses. They note the need for metadata standards: "Meta-data standards which cross domains and information collections are needed to accurately describe the sources of information, how they were collected and were validated" (p. 11). Erlandsson (1996) also discusses the three components of records: content, structure, and context. Data regarding structure and context are called metadata (data about data), without which the item/content "loses its 'recordness'" and is useless as evidence" (p. 8). Erlandsson cites numerous references on the topic of ERM and the importance of metadata and discusses them in detail . Bearman's statements regarding metadata and ERM are useful in discussing website records management: Record content is "preceded by information identifying the record, the terms for access, the way to open and read it, and the business meaning of the communication" (Erlandsson 1996i, 9).

Erlandsson (1996) also discusses the organization's definition of a record, which subsequently helps records managers and archivists identify documents that are evidence of that organization's transactions and functions. Quoting David Wallace, Erlandsson (1996j) suggests that metadata about records, specifically structure and context, must be designed into electronic systems so that archivists can "capture descriptive information about records systems instead of describing them from scratch" (p. 14).

Metadata are discussed as a means of documenting the officiality of a record. The metadata completes the electronic records and increases the officiality of the record because officials and the public can see them in their original context surrounded by records available at the time of their creation and use, which therefore increases the records' evidential value in liability situations (Erlandsson 1996). As quoted by Erlandsson (1996i), Bearman states:

> Metadata, if retained inviolably with the content, ensure the evidential character of the record. The approach taken to standardization, therefore, is to imagine a "metadata encapsulated object" as the product of any communication;e.g., a record equals a metadata encapsulated object whose metadata is defined as the metadata required to satisfy the functional requirements of record-keeping. (p. 15).

Bearman illustrates here that the means of transferring content is as important to the records as the context itself. This metadata issue transfers easily to website ERM situations.

Erlandsson (1996i) quotes Bearman a second time regarding metadata. In relation to the Pittsburgh Project, Bearman states:

> The production rules and functional requirements can be demonstrated to be satisfied by the presence of specific metadata, if that metadata is inextricably linked to and retained with the data associated with a business transaction. This metadata guarantees that the data object will be usable over time, only accessible under the terms and conditions established by its creator, and have properties required to be fully trustworthy for purposes of executing business. (p. 22).

Bearman's suggestion for the functional requirements of electronic records are equally applicable to website electronic records. The metadata associated with the records helps ensure the integrity of the records and serves in a security capacity as well. Bearman states that functional requirements for recordkeeping "dictate" that records created are "comprehensive, identifiable (bounded), complete (containing content, structure and context) and authentic" (p. 23).

Just as archivists and records managers should be involved with the design and creation of ERM systems, so too should they be involved with metadata systems. Erlandsson (1996j) quotes Wallace:

> Archivists must identify what is required to define and capture records as evidence within this environment .... The requirements for records capture and description are the requirements for metadata. Clearly, archivists need to identify what types of metadata will best suit their descriptive needs, underscoring the need for the profession to develop strategies and tactics to satisfy these requirements (p. 52).

Moen and McClure (1997) suggest that electronic document management systems provide a means of capturing metadata. They report that "document-like electronic resources should be captured at the point of creation" (p. 104). The decision as to when and what metadata should be captured should be based on how the metadata will be used. Moen and McClure suggest that specific metadata should be captured based on the agency's needs and business processes.

Erlandsson (1996i) quotes Bearman still again, regarding metadata in relation to access and retrieval.

> Metadata is a tool for control and migration of electronic information systems, but it also serves as a finding aid for access to and use of archival electronic records. . . . Because metadata is the tool that must be used to re-create the records in the system as evidence (e.g., the way they actually were when the system was used actively), it is an essential intermediary to any retrieval and will be required by users, wherever they are, to document archival transactions. (p. 55).

The ICA (1996) asserts that metadata is an important part of electronic records that must be preserved with the records. The authors note:

> Electronic records lack certain elements of traditional records that contribute to establishing the relationship between a record and its functional and administrative context. Thus, electronic records are heavily dependent not only on a well-documented administrative context, but on metadata describing how the information is recorded. (p. 15).

Importantly, the authors also observe that some aspects of electronic records do not have "parallels" to traditional records, and examples of the different kinds of products available in electronic format are "some types of databases, hypertext, spreadsheets, multimedia systems" (p. 16). These aspects of electronic records are more difficult to identify.

Erlandsson (1996k) quotes MacNeil's discussion of metadata as a means of ensuring accountability for electronic records:

> Metadata systems are management tools to preserve corporate memory and "accountability embedded in an electronic record system" . . . Record-keeping requirements for electronic records must address the need to render documentary relationships visible and to building procedures for authentication and preservation; such measures will ensure that record-keeping systems meet the criteria for "integrity, currency and relevancy" necessary to the records creator. If these requirements are met, the contextual information needed to support future archival descriptive requirements will be preserved as a natural consequence. (pp. 55-56)

Duff notes that, while MacNeil and Wallace agree that metadata is important to maintaining the "integrity and authenticity of evidence of actions," they disagree on whether or not metadata will replace description of electronic records in archival records schedules. (Erlandsson, 1996m, 56).

Hedstrom and Blouin (1997) discuss metadata as typically used to access and retrieve information/records in systems. In relation to the Pittsburgh Project and its reference model for Business Acceptable Communication, the "model defines and structures the metadata that must be associated with each transaction to have reliable evidence" (p. 29). The metadata also deals with liability by ensuring reliability of records.

Hedstrom and Blouin are also concerned about "the use of metadata to control and describe records in electronic systems" and note "the research to date confirms that structured metadata is an

essential component" (p. 31). They also observe that "most current systems do not adequately relate the content of records to business transactions, and most systems lack sufficient metadata to monitor the creation and maintenance of records so that they will be both reliable and understandable when retrieved in the future" (p. 30).

Analysis

Metadata may improve the identification and retrieval of web information and is closely related to the issues of authenticity and accountability. Metadata gives information about data that will help ensure that a record has not been tampered with and indicates the last time a record was updated and by whom. It would be helpful if metadata were automatically captured by a program or system at the time of creation, as recommended by Moen and McClure (1997).

The literature is heavily based in a systems discussion of metadata which may make it more difficult to manage in electronic format due to lack of standards. The lack of standards for metadata is an issue for ERM in general. Metadata is unique because it can establish integrity of records in new systems and in access and retrieval of websites when indexed, and is essential in determining the context in which a record was altered or created.

Preservation of Electronic Records

Preservation of electronic records refers to the process of keeping, and ensuring the continuing existence of, records.

Issues

NARA (1993) describes preservation as the maintenance and use stage of the records life cycle, and also to the facility, quality of care, and condition of the records. Preservation Resources, as suggested by the company's name, focuses on preservation, while incorporating indexing and accessibility issues into its services. The fact that microfiche is created prior to the creation of the electronic copy is of interest to the records management community, because many in this field are concerned with the migration costs of technology, outdated technology, and the loss of information due to computer "crashes." Preservation Resources saves images in several different formats usable on the Internet, compact disc, or tape storage (Gauder and Wagner 1997). Emerson (1993) notes the costs of adding old documents to new systems; indexing is labor intensive and time consuming, but necessary for the preservation of the materials if they are also to be used.

Terry (1997) discusses preservation issues and OCLC. OCLC's new project entails archiving scanned images of documents and pictures electronically, by using low-space-intensive storage and inexpensive telecommunications channels, such as the Internet and widely available software such as Web browsers. A major benefit of using this technology is the large amount of information that will be available worldwide to an unlimited number of people. Another benefit of electronic, digitized information is that it is indexable for search and retrieval, and each cartridge holds the equivalent of

400 million typed pages. The Electronic Archive materials eventually will be made available via OCLC's FirstSearch services. This technology may be appropriate for government use, given the searchability and indexing features, the large amount of information storable on a cartridge, and the huge amount of government information requiring management. The archiving method is particularly important because it sites the Internet and Web browser software as a means of disseminating information, which further indicates its importance as a technology important to general and website ERM.

Erlandsson (1996i) discusses Wallace's view that archivist involvement with the creation process of electronic records is key to how the records will be archived and preserved. According to Wallace, "The traditional practice of passively preserving the record at the terminal stages of its life cycle will fall short of what is needed in the second generation. The record may survive without early identification and intervention . . . What is needed is a reassertion of what archivists do and a reorientation of how and when we do it" (p. 4).

Context is an important part of preservation of electronic records: "Records are remnants, of past (business) transactions, and recordkeeping systems created by the originator must be preserved, undisturbed and in their original order, as evidence of what has taken place" (Erlandsson 1996, 8). If records lose their "recordness" during the migration process (conversion), then there is no reason to preservate the item.

The ICA Committee on Electronic Records (1996) addresses the issue of preservation of electronic records in a networked environment with implications that the issues would be the same that website electronic records. The Committee notes:

> Networking supports easy transfer of messages, documents, and software to anyone who is connected to the network. This state of technology makes it technically possible to process and communicate all of the information needed to conduct business activities in modern organizations. . . . With the growth of networking and the development of paperless transactions, archivists have become increasingly concerned about the long-term preservation of electronic records. (p. 4).

The committee reports that preservation and access are interdependent, in as much as "access depends on preservation and preservation actions must be directed towards the goal of maintaining records that are available, accessible, and understandable" (p. 25). The committee also asserts that "a record is preserved if and only if it continues to exist in a form that allows it to be retrieved, and once retrieved, provides reliable and authentic evidence of the activity which produced the record" (p. 27). Preservation is conditional upon migration of electronic records and whether or not a new system will have the capabilities and functions of the original system to ensure authenticity of records.

NARA (1996) discusses migration of data in terms of ensuring continued accessibility when systems are upgraded or transferred to new recordkeeping systems. It is crucial that the new version or new system is able to read the records and be able to continue to provide access to records over

time. According to NARA, "Loss of documentation can render the agency unable to protect Government rights or to keep a basic public trust: protection of the legal and financial rights of individuals affected by Government action" (p. 12).

The MOU among the GPO, Department of State, and UIC discusses the maintenance of the DOSFAN Electronic Research Collection in terms of migration as a means of maintaining access to the collection. The MOU requires UIC to consult with the "Superintendent of Documents on any plans to migrate, reconstitute, or otherwise significantly modify the structure of the information content of or access software to the DOSFAN Electronic Research Collection, other than routine refreshing of the resource" (Library Programs Service 1997, 2). Also required is that industry standards be considered and access to the collection must not be limited. The State Department is responsible for working with the UIC Library to determine which records on the active DOSFAN site are to be transferred to the collection that UIC is making accessible, making available records to be transferred identified by other sources, and ensuring that old information is removed when replaced by more current information.

Discussing the issue of preserving electronic records electronically versus preserving electronic records on paper, Varon (1997) quotes Justice Department attorney Anne Weismann: "We don't have the capability to preserve them in an electronic system that makes any sense" (p. 12). The public advocacy group Public Citizen believes electronic records should not all be treated the same, according to Varon, and that some electronic records have unique qualities that are lost when printed to paper.

Erlandsson (1996) discusses the preservation of electronic records in terms of the content of the record and its metadata. He describes the qualities of preservation of records as reflecting content, structure, and context over time within systems. He also uses the terms inviolate, coherent, and auditable to clarify functional requirements concerning the preservation of records. Inviolate records are those to be protected from alteration, damage, or deletion, whether accidedntal or intentional. Coherency refers to the retention of record content and structure in order to reconstruct relationships with other records. Auditable refers to the quality of record context as representative of processes in which records have been involved and requires that the processes are documented by audit trails and attached to the record.

Bearman and Hedstrom championed the idea that archives should monitor and inspect how well creators performed record-making functions instead of preserving and archiving records, but this notion transfers archival responsibilities to agencies and organizations that have formerly and traditionally been served by archives agencies (Thibodeau 1996). Such a posture is deemed irresponsible because "it would have the archives abandon its responsibility to protect and provide access to historically valuable records and instead impose the responsibility on records creators" (p. 282). The result of transferring archival responsibility to other organizations may be that preservation will be abandoned altogether, because the other organizations may not have the needed funds either to preserve their own records or to provide access to them, let alone the fact that they lack an archival mandate within their organic statutes.

Thibodeau (1996) discusses the issues of security ("easy erasure"), media shelf life ("rapid loss due to susceptibility of the media to deterioration"), and migration (transferring records to new media) as they relate to preservation of electronic records (p. 289). Migration to a format independent of hardware and software is recommended, despite the associated costs, due to such benefits as new media having "greater density," generally decreasing costs per unit over time, and faster transfer rates of data (p. 289).

Sprehe (1997c) indicates that the GRS-20 states that it is acceptable to print out electronic records on word processing and e-mail systems, save the paper copy, and delete the electronic version--despite its unique storage and retrieval capabilities. Sprehe (1997a) also notes preservation issues relating to e-mail: "When you are managing e-mail as records, you must save the names and addresses of the sender and all recipients as well as the subject of the message and the date of transmission" (p. 22). Similar kinds of information are required when preserving website electronic records, which are recorded as metadata, perhaps including web logs.

Analysis

The literature indicates that electronic records issues must be identified when records systems are being created or designed and that systems designers must involve archivists or records managers at the design stage. An opposing view is that electronic records must be preserved in their original systems, which removes the need for migration, but does not address the issue of maintaining the equipment and training people how to use obsolete systems in the future. The issues are appropriate to website electronic records as well. Migration, costs, and access are some of the concerns surrounding preservation of electronic records. Because website records are written in HTML, the records are relatively easy to preserve; the structure of the record is contained within the coded document. The software used to access the document must be preserved and adapted to accommodate the current hardware, however, or the document reformatted to be retrievable on the new systems. The document still must be preserved in an environment that contains browser software in which to open the website document to ensure that it looks as it did when it was originally published on the Web.

Preservation of website electronic records concerns systems and the records themselves. The systems must provide access capabilities through indexing, while ensuring the authenticity of the record. The record itself must be fully intact and useable in the system. It may be that every time new technologies are acquired, the website records must be migrated to a new format to accommodate their readability, while ensuring that the content, context, and structure remain the same as the original record. Preservation directly affects the degree to which organizations can account for information posted on websites in the past. In order for websites to be authentic over time, content, context, and structure must be maintained in new systems.

A visit was made to the Internet Archive in San Francisco to find out if ERM policies regarding the collection of public domain websites were relevant to this study. As a result of an interview with the systems administrator and the chief executive officer, the conclusion was reached

that, despite the cutting-edge initiative to archive the Web, specific website records management practices as defined in this study are not an issue for that organization. In the future, if the Internet Archive becomes a more public interactive website service it may need revisiting.

Privacy

Privacy refers to the individual's right to remain anonymous when records in electronic format are access and to have official information about him or her remain restricted.

Issues

The ICA Committee on Electronic Records (1996) discusses personal privacy in terms of (1) people having access to records about themselves and (2) legislation regarding records disposition. The committee notes that "the ease of searching for, retrieving, and manipulating electronic records has raised concerns in many countries about the ability of governments and private organizations to protect the personal privacy of individuals who are the subjects of their records" (p. 11). These concerns are applicable to website ERM because web logs and cookies[1] may be kept as records of who accesses particular web sites.

Sprehe (1997a), in his discussion of privacy relating to employee e-mail, notes that employees have "limited expectations of privacy when they are on the job. . ." and ". . .under some circumstances, a supervisor could have good cause to read employee e-mail" (p. 20). The author suggests it is possible to use past experiences with paper records to resolve the same issues and to guide the rewording of policies to include e-mail.

Gellman (1996) also discusses transactional records in terms of consumer privacy. Because weblogs and cookies can collect information during electronic "transactions," this topic is applicable to ERM of websites. Gellman notes:

> No laws . . . regulate the use of transaction records. Many of the detailed records of consumer activities can be freely collected, maintained, bought, sold, and compiled without restriction. . . . A leading privacy scholar says that individuals are increasingly subject to surveillance through the use of databases in both public and private sectors . . . . The problem is compounded by the ability of computers to collect, compile, and maintain vast quantities of information (p. 152).

---

[1]The term "cookies" is well known in the Internet world. It refers to the fact that, when a user browses a website, the website's computer stores information on the user's computer about sites the user visited. The purpose of this practice is so that, when the user makes a return visit, the website can lead the user back to sites of previous interest.

Personal privacy on government websites and access issues are discussed in a report from OMB Watch, a public interest research group. Although the benefits of the Internet are recognized and acknowledged, privacy issues affect access to information on government websites. Privacy on the Web involves two aspects: (1) accessible personal information and (2) information collected through websites. The OMB Watch study found that 31 of 70 government agency websites collect personally identifiable information about website visitors, and most do not inform users that they do so (Schwartz 1997). Schwartz also notes that agencies only collect information and do not currently provide personal information via the Web. The report's authors recommend developing policies to handle online access and privacy issues, and conducting workshops for webmasters and privacy officers to discuss access, privacy, and technology issues .

The World Wide Web Federal Consortium (1996) also discusses collecting user information from websites. Two issues that bear on the collection of user information are: (1) notification that monitoring occurs and (2) what information is being collected and how it will be used. Cookies and web logs are two techniques used for such information collection. The consortium recommends that website computer files that contain specific information that can identify users should be destroyed within a short period of time.

Schorr and Stolfo (1997) consider privacy to be a major issue in a networked environment and give as an example the problems that arose at the Social Security Administration when it shut down the online pension benefit information system in spring 1997. "The public's right to know is a fundamental tenet of any democratic society," Schorr and Stolfo state, "yet there is a growing concern about the potential dangers to individual rights and privacy arising from electronic access to a variety of personal information" (p. 4).

In the MOU (Library Programs Service 1997), UIC is required to provide information to the GPO that would be obtained through web logs. The requirement states that UIC shall "compile user statistics and other performance measures upon the request of the GPO, and make those statistics available to the GPO as FDLP administrator" (p. 3). Use of statistics and performance measurements may raise questions relating to the privacy of persons visiting the website.

Analysis

The privacy of persons accessing government websites must be considered when websites collect, manipulate, and use information about visitors. The information should not be kept longer than it is actually needed for analysis, and the visitors should be informed that information is being kept about their searches and that they are indeed identifiable through their website visit, if this is the case. The literature indicates that most organizations do not keep records about individuals that compromise privacy on websites, but rather collect data about persons visiting the site. This kind of information is referred to as transaction records, which can be collected, bought, and sold, although it would not be appropriate for government agencies and departments to buy or sell such information. Information collected from a website should be analyzed to determine how better to serve the organization's clients, not to identify specific users' information interests. Sprehe (1997a) suggests

using existing policies about privacy to govern e-mail policies, which is in turn applicable to website privacy policies..

Highly sensitive information that would require encryption may not be appropriate for publishing on public websites, although it is essential for electronic commerce. This information would better be transferred in a more private transaction between predetermined parties. Encryption of website information may, however, be an option for less sensitive information that must be disseminated to a large group of people. Security of private information must be considered, and cryptography may be a solution. Accessing the information in an archival or records management situation may later be complicated, however, by the need for additional technologies to access the information in its original format.

Privacy is an important issue associated with cookies and web logs. Because cookies collect information about users, the users must be informed of what will be done with the information and be given the opportunity to deny the cookie to be set. Web logs must be used appropriately, and users must be notified as to what information is being collected.

Organizational Responsibility for ERM

Organizational responsibility for ERM means the designation of an individual, group, or agency with specific responsibilities for records management.

Issues

The draft Australian standard (Standards Australia 1996)provides that "the authorities, responsibilities, and inter-relationships of all employees who manage or perform recordkeeping process shall be defined" (part 2, p. 5). Standards Australia identifies business unit managers, records managers, systems administrators, and employees as four groups at different levels in agencies who have responsibility for different processes associated with ERM. Each group is responsible for establishing standard practices and rules to document business processes. Notes Standards Australia, "Recordkeeping is not the province of archivists, records managers or systems administrators alone, but is an essential role of all employees" (part 3, p. 4).

Erlandsson (1996f) notes that the UBC project leader for the DOSFAN undertaking, Duranti, believes that typically there is no central responsibility for the creation of records, which therefore leads to problems with record reliability. In Duranti's view, "Too many persons and too many records forms are generated in too many different contexts and participate in the same transaction; too much information is records; too many duplicates are preserved; and too many technologies are used" (pp. 26-27). Duranti sums up the "too many" list with the conclusion that while electronic records may be authentic when they are generated, they are unreliable at later dates. It is not a function of records management, but rather responsibility for records creation, that becomes the problem of records managers.

Electronic records cannot be managed by nonrecords management or archival staff. Emerson (1993) notes that in order to have an ERM program, there must be a person or organization with proper qualifications to be responsible for the program's management. In addition to a person responsible for the ERM program, there must be a clear line of authority within the organization for ERM. Erlandsson (1996) discusses a government agency records manager who indicates that individuals who keep electronic records on disks or computer hard drives pose a serious threat to "institutional memory" (p. 29). The records manager stresses that this kind of ERM must be replaced by "functioning recordkeeping systems" (p. 29). Responsibility is thereby withdrawn from people not trained in records management and instead put on a system designed to serve the organization's recordkeeping needs.

Although "documents" are discussed, as opposed to "records," Parrer and Perot's view of electronic management of electronic documents, as presented by Erlandsson (1996n), is relevant because the focus is on the organizational structure and the flow of documents/records. Parrer and Perot state:

> Organizations positioning themselves into an increasingly electronic environment will need to do more than acquire a suitable document management computer system. They will also need to define the management structures required to control the electronic environment and they will need to state clearly what levels of responsibility each officer must take when creating, using, transferring, or storing electronic documents. (p. 30)

Erlandsson summarizes Parrer and Perot's findings from the IMOSA project: "To be successful, archival requirements must be integrated smoothly with general business requirements in order not to cause inconvenient restrictions on the end user" (p. 31). A smooth integration of archival needs and overall organizational needs signifies success.

In its discussion of the responsibility of the archives in influencing other people who contribute to the archival function, the ICA Committee on Electronic Records notes that "the archives needs to direct, influence, and oversee the actions of other actors throughout the life cycle of archival electronic records" (p. 23). The groups that should be directed, influenced, and overseen include: "(1) records creators and records managers; (2) those who establish laws, regulations, and policies; (3) those who allocate resources; and (4) those who produce, supply, and manage the information technology on which the records depend" (p. 23). In short, the archivist and records manager should be aware of and work with every organization that affects archival records. This approach is acknowledged to be difficult to pursue, and archivists and records managers will have to take on traditionally nonarchival roles to be successful.

Responsibility for ERM is discussed by Erlandsson (1996) in terms of administrative needs, such as creating and updating written policies and procedures for use of recordkeeping systems and responsibility for satisfying recordkeeping requirements. By establishing a clear line of responsibility and clarifying requirements, the organizations are able to work towards completing their particular duties. It is wise for an organization to assign a person or office the responsibility for recordkeeping

requirements of each system. Responsibility must be specified by an available e-mail address on a website so that visitors know whom to contact for clarification or to solve problems regarding the informational content of a site (World Wide Web Federal Consortium 1996).

Analysis

The issue of responsibility for website electronic records spans the life cycle and falls to a number of different positions. Who is responsible for various aspects of a websites is not clearcut and may differ from agency to agency. Responsibility for creating websites and designing them so that they are consistent with other organization's missions and websites are important considerations. The literature reviewed does not indicate who should be responsible for determining when information should be updated, what is placed on a website, and what is not, although criteria such as "appropriate," "timely," and "accurate" are applicable for this purpose. The website also must indicate who is responsible for website management and must provide an e-mail address or other means for communicating with users.

Both the webmaster and the content providers must work with records managers who will receive the website electronic records when they are ready to be transferred to storage or the archive. Responsibility for website ERM must be placed with qualified records managers who are familiar with websites and the importance of preserving websites as records specifically in electronic systems. Records managers must become involved with webmasters and others working with the website to ensure that the website will be in its official state when it is ready to be transferred to the records center or archive. The responsibility for storage and custody of noncurrent websites should be vested in a records management or archival organization rather than the originating agency, because such functions are primarily archival in nature. The possibility that website electronic records might stay in the originating agency could compromise website preservation; older records are not the agency's primary concern, and persons within the agency may not have proper training or knowledge to deal with the websites indefinitely, or for as long as the disposition schedule prescribes.

Risk Management

Risk management refers to steps taken to ensure the continuous access to information in the event of a natural, mechanical, or person-induced disaster.

Issues

Hedstrom and Blouin (1997) discuss risk management in terms of assessing the costs and benefits of preserving electronic records. Their report states:

> One obstacle to making a compelling case for long term preservation of electronic records is the lack of data about the risks, benefits and costs. Specific areas that were identified included research on the organizational consequences of inadequate corporate memory and the social impact of the loss of data. (p. 7).

Their discussion also suggests that research on the effects on organizations of lost electronic records may help other organizations realize the risks associated with "inadequate recordkeeping" and help recordkeepers and archivists illustrate to their respective organizations the benefits of investing in adequate electronic recordkeeping systems.

Pember (1996), in addressing risk management as an element of information disaster planning, discusses electronic records as well as traditional records. Pember's initial statement easily applies to government agencies: "Business risk analysis and management is the carefully planned preparation at the corporate level to counteract major business threats (including risk analysis of opportunities) and to provide the provision of business continuity during and after crisis situations" (p. 31). The important statement that "business continuity planning is no longer considered a luxury, but rather a necessity; in fact it is mission critical" is appropriately made and particularly relevant in an electronic environment (p. 31).

Risks discussed in relation to technology, particularly computers, apply directly to websites. Virus detection, loss of electricity, terminated and disgruntled employee access/denial to systems, frequency of backup, storage location of backups, and the completeness of all vital records duplicated in an appropriate format and stored off-site are known examples of risks to be considered.. Emerson (1993) also refers to the challenge posed by terminated employees who have access to vital information and who may sabotage an organization. A solid risk management program must be in place either to complement as part of the ERM program.

Erlandsson (1996p) points out that Australia's Edith Cowan University Project report states that records managers and archivists managing electronic records are not understood to be a valuable resource for organizations as "documentary risk managers applying the skills of internal consultants and trainers, technology assessors, and metadata auditors," (p. 25).

Erlandsson (1996) identifies risk management as a responsibility of recordkeeping systems management. Erlandsson posits that a functional requirement of a recordkeeping system is to define methods for system management should the primary system fail; however, suggestions for doing so are not provided..

OCLC (1997) discusses the records management issue of risk management, and more specifically disaster recovery, in relation to a project undertaken by JSTOR and OCLC. JSTOR, a non-profit organization focused on providing access in electronic format to back issues of journals for scholarly use, has combined efforts with OCLC to help the academic community fully enjoy electronic technologies for disseminating information. The first of JSTOR and OCLC's cooperative efforts will be to "implement a disaster recovery plan for the JSTOR database, which contains over one million pages of important archival journal literature" (p. 24). OCLC focuses on making current journals available online, which makes the joint effort with JSTOR a full-coverage endeavor. The issue of disaster recovery faces all facets of records management, regardless of the materials' media.

NARA (1996) describes risk management in terms of "backups," also called redundant storage, a kind of security measure taken due to "the fragility of some electronic media" (p. 9). NARA notes that the frequency with which backups are made must be decided by each organization, and the need to recycle the backups should be considered. NARA's statements confirm that risk management is closely linked to security concerns, which highlights the importance of risk management to organizations.

Analysis

Risk management deals with planning for emergencies and disasters so that, in the event one occurred, the organization would be able to continue operations. Preserving copies of current and previous versions of an agency's website can be assessed in terms of a risk management function. Websites must be considered in terms of risk management because they contain information, perhaps records, important to the agency and that must be backedup in case the active website is lost due to technical problems. The content, context, and structure of the website--everything that makes the website authentic--is preserved, and the risk associated with working with and relying on technology is minimized, when it is managed. If a website is lost, the organization can no longer account for it, although the agency is still liable for the information.

As Pember (1996) notes, risk management allows an agency to continue operations after a disaster because the information crucial to running the business has been preserved in a separate location for just this reason. Risk management practices must be adopted for website ERM because official information is being transferred and may must be accounted for at a later date. The literature does not discuss the risk presented by the absence of an ERM program for official records.

Storage Facility/Custody

Storage facility/custody means the responsibility for the physical storage of records.

Issues

Archivists face an issue of responsibility based on who has physical custody of the electronic records being archived. The Committee on Electronic Records (ICA 1996) asserts that regardless of where the records are stored, the archives has responsibility for them, including the responsibility to make recommendations for responsible custodial action: "If the archives is responsible for preserving the records, it should take the appropriate preservation actions. If another organization has custody, the archives should recommend the appropriate actions and assist in their implementation" (p. 27). The committee also suggests that the options should be recommended considering the "three required characteristics of archival records: availability, accessibility, and understandability" (p. 27).

Erlandsson (1996) presents an overview of the two opposing views surrounding custody and post-custody of electronic records. On the one hand are Thibodeau, Duranti, Higgs, and others who

believe that electronic records should be placed in the custody of an archival institution to ensure preservation. Reasons range from historical to prevention of tampering with records to integrity issues to organizational factors. On the other side are Hedstrom and Bearman, who endorse the noncustodial alternative and who, Erlandsson states, want to "liberate archivists from the burden of custodianship" (p. 61). Hedstrom and Bearman believe that "rather than steering records creators toward adequately documenting government business, archivists and records managers should regulate the disposal of obsolete or unneeded records," and "rather than directing organizations toward designing records systems that meet record keeping requirements and conform to access, description, retrieval and preservation standards, archivists attempt to make records conform to standards after the fact" (p. 61).

Parrott, of the Australian Archives, agrees with the noncustodial viewpoint and offers technological, migration, cost, and management reasons for this position (Erlandsson 1996). Another Australian archivist confirms that "our current view is that the preferred arrangement is for agencies to retain indefinite custody of electronic records of ongoing value, but under a management regime worked out with the Australian Archives" (p. 62).

One important reason given for the creating agency managing electronic records is that an archival institution would not be able to provide long-term access to the hardware needed to view the information, but could provide only the media on which the information is stored. Debate continues as to whether creating agencies should keep the electronic records or whether they should turn over the records to an archival agency. Issues related to the location of the records are authenticity and accountability; some people believe that records may be altered to benefit the organization or an individual if records are kept in the custody of the creating body, and that archival agencies would not be able to provide access to the information, but rather provide the media only. Thibodeau (1996) notes, however, that "no one who has advocated this 'non-custodial' approach . . . appears to have explored what would be required to preserve electronic records *in situ*" (p. 290). He continues that this is only "a relocation of the problem, instead of a solution" (p. 290).

An important issue of records disposition involves the location where the archived records should be stored when they are no longer needed for use or "active" (Hedstrom 1997). The summary of recent electronic records research reveals that "a few of the projects have addressed the current debate within the archival community over whether, when, and how archives should assume physical custody of electronic records for long-term preservation and access, but there is no consensus on this question" (p. 7). There is no consensus in the literature on who should have physical custody of electronic records.

Analysis

The idea of agencies maintaining custody of their own records for preservation, with archival and records management direction, may not be a beneficial solution to the problem of preserving electronic records. This solution focuses on the notion that the organizations could preserve

electronic records on the original equipment, but it does not address the issue of migration once the original system can no longer be maintained.

Another problem with this approach is that records would not really be managed unless additional staff were hired and trained for the purpose of dealing specifically with the new responsibility. If the agency were responsible for preserving its own materials, the agency might change to plan better for records management. Just as likely, however, is the possibility that the agency would view the responsibility in a negative way as something that takes away valuable time and funds needed to perform the organization's primary mission. Focus and training, as well as security and integrity issues, must be considered before organizations consider a "noncustodial" approach to ERM, including website ERM.

Creation of Electronic Records Systems

Creation of electronic records systems means creation of information systems intended to manage electronic records throughout their life cycle.

Issues

The literature discusses the following aspects of the creation of electronic records systems: authenticity, liability, records integrity, risk management, training for system reliability, metadata, security, indexing for records capture, accessibility, retrieval, and records disposition.

NARA (1993) defines an electronic records system as "any information system that produces, processes, or stores records by using a computer" (p. 13). The creation of electronic records systems is important to ensuring the survival of future electronic records, according to Erlandsson (1996). Just as archivists and records managers are called upon to participate in the creation of "computer-based information systems" their input for website design and structure may also benefit the recordkeeping for websites within these information systems. "Archival interference in the design of record-keeping systems could work against the most fundamental goals of archives: to reveal the processes of government by making the evidence of those processes available, understandable, and interpretable" (Thibodeau 1996, 286). Schorr and Stolfo (1997) state that "matters of security, privacy and integrity are absolutely critical design criteria for systems since public trust is at stake" (p. 12).

Erlandsson (1996p) includes a quote in his review of the Edith Cowan University Project report that points to an advantage recordkeepers and archivists have in dealing with ERM; "The basic principles of record-keeping and archives give records managers and archivists tremendous advantage over others in the organization who are not yet aware that not all information is records and that most information systems do not keep adequate records to protect the organization" (p. 25). This statement strengthens the argument that records managers and archivists must be involved with the design and creation of ERM systems.

Erlandsson (1996q) observes that McDonald describes functional requirements for electronic recordkeeping, but not in those terms. In discussing what the future of systems may look like, McDonald notes that his computer screen now has icons representing "toolbox" utilities. In the future the icons he wants on his screen will reflect "the business processes unique to his organization" (p. 33). In McDonald's ideal ERM system, the "rules for defining and establishing how the content, context, and structure of the records of the actions and transactions of my division's business activities are to be kept would have been set beforehand and designed into the applications--that is, behind the screen" (p. 33). This description exemplifies the results of records managers working with systems designers and systems users to ensure that electronic recordkeeping needs are met.

Erlandsson (1996) describes the recordkeeping functions an of electronic system to document organizational records, including compliance with legal and organizational recordkeeping requirements. This discussion stresses that laws, regulations, and best practices for recordkeeping within one's specific industry should be known and adhered to. Internal and external regulations and policies should be linked together for documentation purposes, and best practices, laws, and regulations should be tracked so that the organization is aware of changes and updated information. Erlandsson also discusses the functional requirements concerning implementation of a system. Business transactions must be conducted exclusively through the system, the system should be used for records only, the system must be used at all times, and it must be proven that the system is operating at all times. The system also must be reliable and must produce credible records.

The article "Functional Requirements for Evidence in Recordkeeping" continues the ICA (1996) discussion of functional requirements preveiously referenced by addressing the concepts "removable" and "usable." Removable means that "records content and structure supporting the meaning of content must be deletable" (University of Pittsburgh 1997). Removable does not include audit trails reflecting context, but rather the content and structure of the records. Usable records are exportable ("possible to transmit records to other systems without loss of information"), accessible ("possible to output record content, structure and context" and also "available, renderable," and related to the "evidential nature of records") (p. 11), and redactable ("must be masked when it is necessary to deliver censored copies and the version as released to be documented in a linked transaction") (p. 11).

ICA's Committee on Electronic Records (1996) notes the relationship between the process of change of information systems and ERM issues:

> The evolution of information systems is pertinent to issues of electronic records management and preservation because the evolving capabilities and uses of information systems have an impact on the purpose, comprehensiveness, reliability, authenticity, and value of the electronic records. (p. 2).

Although not discussed, website ERM could be one aspect of the evolution of information systems that will impact the value of electronic records as they document information available on a wide scale.

NARA (1996) presents its view of requirements of electronic recordkeeping systems that should be considered when designing the systems: "To meet recordkeeping requirements, electronic recordkeeping systems must control or allow the user or system manager to control the creation, identification, storage, accessibility, retrievability, integrity, security, and disposition of the records in the systems" (p. 4). Also required is a data dictionary that records the

> identity of the record creator or source of the received record, the date of creation or receipt, the level of security classification or other access restriction, if any, file classification designation, indexing information such as subject or Thesaurus terms, and records disposition schedule citation if different from file classification designation. (p. 6).

CTG (1997) provides guidance on the environment that should exist before electronic records are created so that the records are handled properly. The guide focuses on recordkeeping systems and includes discussions of system reliability and records capture, and how records are maintained and accessible. CTG advocates that the "system should be administered in line with best practices in the information resources management (IRM) field to ensure the reliability of the records it produces," that "records are created or captured and identified to support the business process and meet all recordkeeping requirements," and that "electronic records are maintained so that they are accessible and retain their integrity for as long as they are needed" (p. 9).

Kowlowitz and Kelly (1997) stress the business process as a key component of ERM: "Organizations are finding that their electronic records are not sufficient to support the ongoing needs of business processes . . . ERM requirements must . . . be addressed at the system design stage and not after-the-fact, as an isolated additional activity" (p. 20). The authors' Models for Action project focuses on developing tools to help organizations integrate functional requirements for ERM into their business processes. A theoretical foundation on which Models for Action is based is:

> Given that most effective system development is done in conjunction with business process improvement and that records management issues are fundamentally related to business process issues, not technology issues, project staff expanded the [Models for Action] project to include the methodologies used by organizations to support business process improvement. (p. 21).

The authors also state that requirements for records management should be viewed at three different levels: "Business Process, Record, and Systems" (p. 22).

Erlandsson (1996r) discusses the Canadian National Archives' guide for management of electronic records, *The Management of Electronic Records in the Electronic Work Environment.* This environment is:

> a flexible, integrated work environment which is intuitive to the functions, work processes and information needs of the employee. The environment is comprised of a standard set of work tools at the desktop, thereby allowing the worker to create, manage, retrieve and reuse

information intuitively and seamlessly at the right time, in the right place, in the right format, and in a cost effective manner (p. 34).

The Canadians' compilation of guidelines offers options for short-term and permanent solutions, addresses management of e-mail records, and "looks forward to a fully integrated work environment" (p. 34). The need for users to understand their responsibilities, for organizations to develop policies and standards for management of records, and for the policies and standards to be accepted into the corporate culture is acknowledged.

Analysis

The design of databases and information systems affect the way electronic records will be managed. Archival involvement in the design of electronic records systems is a subject of debate because records are supposed to capture, and be the evidence of, government business. If archivists and records managers become involved, government business may be altered, probably in beneficial directions. Archival involvement in the creation of electronic record systems would help to educate systems designers and users concerning the importance of records. This involvement could lead to breaking down a transaction into parts within the system to help determine if a piece of information is really a record. For websites, a transaction always occurs when information published on the site is transferred to a visitor.

Another concern noted in the literature is that electronic recordkeeping systems may not reflect the business transactions or processes of an organization. Instead, transactions or processes may be forced to fit specific electronic recordkeeping systems. The records would then reflect the business on the transaction level. The content, context, and structure could be designed to be migratable to new technologies and to better reflect the organization's structure.

The literature discusses electronic records systems, and not systems for website management. The structure of websites, to some extent, is built into the HTML code. A system that would record the author, date, purpose, title, indexing terms, etc., for website postings would be useful for website ERM.

Appraisal

Appraisal means "the process of evaluating business activities to determine which records need to be captured and how long the records need to be kept to meet business needs, including the requirements of organizational accountability and community expectations" (Standards Australia 1996, part 1, 6)

Issues

The literature manifests little consensus on appraisal, perhaps other than the fact that it is an essential element in ERM. Erlandsson (1996s) quotes David H. Thomas:

> In order to identify the archival nature of electronic records, it is important to understand the types of functions that businesses do, and to determine which of these functions are actually important and therefore need to be documented. Without an understanding of this, it is impossible to ascertain which electronic data document records of business transactions, and which do not. (pp. 12-13)

This process is part of the concept of "enterprise analysis." Thomas first emphasizes the organization, then the functions performed, and lastly the record that documents the transaction.

In a discussion of the appraisal of electronic records, Erlandsson (1996) quotes Parer: "Valuable records need to be identified early on in the process so that procedures required to manage, and ensure the survival of these records, can be built into the system" (p. 42). Business function is determined to be a better way to make appraisal decisions than the records themselves. Erlandsson (1996c) cites Greg O'Shea:

> The need to adopt this interventionist approach at the very outset of the records life cycle, which for electronic records is the system development phase, in order to preserve the archival record finally kills the notion that archivists are passive spectators at the genesis and over the formative years of the life of the record. . . . The pressing needs of intervention to ensure that valuable electronic records are not lost dictates not only a more strategic approach to appraisal but also a more strategic approach to the whole field of archival practice (p. 42).

Charles Dollar summarizes in question form the opposing views of records appraisal held by the United States and other countries: "Should selection focus upon the functions that give rise to the records or to the content of the records themselves?" (Erlandsson 1996d, 49). The U.S. NARA appraises records based on the assumption that "the chief purpose of preserving records in archives is to make these records available to researchers." (p. 49). Other countries, such as Canada, Holland, and Australia, appraise records based on function and take a "top down" view that includes the identification of the most important functions of government, an analysis of the administrative and documentary context of the records that these functions viewed.

The Committee on Electronic Records (ICA 1996) also discusses appraisal of records in terms of the electronic recordkeeping system and at which stage records appraisal should take place. Appraisal functions built into systems "enable retention, preservation and accessibility of archival records" (p. 25). Overall, appraisal should be built in at the conception stage, or if this is not possible, at the records creation stage. Appraisal at the maintenance stage is problematic because of the possibility that "adequate records will not have been created; that the authenticity of the records

cannot be demonstrated; that the records are incomplete, unreliable or not interpretable"; or that the information that is retained does not reflect functions and activities of the organization (p. 25).

Hedstrom (1997) notes that several projects are "testing new methods for appraisal and analysis to identify records that have enduring value and that need to be protected for future use" (p. 33). She states that the focus is moving towards analyzing functions and processes within organizations more extensively, and discusses NHPRC-funded programs such as the Vermont project that worked to identify records of permanent value and to build decisions regarding appraisal into the ERM systems.

Analysis

Literature discussing the appraisal of electronic records centers on two concepts: performing appraisal early in the life cycle and focusing on business processes. Appraisal of electronic records must be proactive, rather than passive, in order to ensure that important records remain available for future use. The business process approach to appraisal allows a natural scheme for organizing the records, and records can be easily identified as relevant for future use associated with a recognized business process. The combination of these approaches to appraisal allows a focus on records as evidence, as opposed to physical entities.

Need for Knowledge

In this chapter, literature has been reviewed with the purpose of discovering what is known about records management as it applies to websites. Topics covered were:

- Records Life Cycle
- Official Records
- Records Integrity (including Security and Authenticity)
- Versions of the Records
- Electronic Records Disposition
- Liability
- Access and Retrieval
- Accountability
- Accuracy
- Appropriateness and Timeliness
- Use of Disclaimers
- External Links
- Maintenance of Websites/Electronic Records Management Systems
- Metadata
- Preservation of Electronic Records
- Privacy
- Organizational Responsibility for Electronic Records Management
- Risk Management

- Storage Facility/Custody
- Creation of Electronic Records Systems
- Appraisal

For each topic, the issues were summarized and then briefly analyzed.

This literature review suggests that a limited body of literature exists about ERM of state and federal websites, although the literature on ERM is growing. The literature on ERM of websites lacks clear, consistent use of key ERM concepts and terms, however. Regarding key issues, the literature is often contradictory, confusing, contentious, and nebulous, and it lacks coherent organization and understanding of key concepts. Much research and writing is still need concerning ERM of websites.

It is especially important to note that much of the literature that does deal with ERM of government websites focuses on the federal context and does not address the situation or issues at the state level. To some degree, as suggested in the analysis of state websites presented in Chapter 3, the states generally lag behind the federal government in identifying and dealing with ERM issues related to websites. But, a senior federal Chief Information Officer has observed that "state spending on [information technology] is accelerating at four times the rate of federal spending. The reason is that the federal agencies are discontinuing activities and giving them to the states and cities. This is a major move" (Thompson 1997, 1). Thus, ERM of state websites is likely to be an increasingly important issue in the near future.

The dearth of literature specifically on ERM of state and federal websites is also indicative of the limited awareness of the importance of managing official records on websites in a comprehensive and systematic approach. The limited degree to which "traditional" records management strategies can be applied to websites is problematic at best. To some extent there is greater knowledge among professionals in the actual practice of managing records on websites than there is in the literature.

Finally, it should be stressed that ERM of state and federal websites is likely to evolve and change rapidly due to the explosion of Web-based information resources and services from government agencies; pressures on government agencies to increase quality of services and reduce costs; and court cases such as Public Citizen v. Carlin (October 1997), which will force agencies to rethink their ERM practices of websites. The reality is that more, not fewer, issues are likely to arise related to ERM of websites in the near future. Practical research will be needed to grow the literature from opinion-based to research-based knowledge that can assist records managers to better manage state and federal websites.

CHAPTER 3
WEBSITE RECORDS MANAGEMENT IN THE STATES

Status of Electronic Records Management in the States

Records management professionals are increasingly concerned about the lack of state policy guidelines pertaining to ERM. This issue is of particular concern in the rapidly expanding and ever-changing environment of the World Wide Web. The creation of ERM guidelines is of utmost importance, since few state government professionals appear to focus at present on records management issues surrounding website information.

In view of the primary goal of this project--to develop model guidelines both for records management and preservation strategies of electronic information contained on state and federal websites--the study team set out to review existing state records management policies and guidelines.

The investigators focused first on locating information from state websites, state employees, and listservs related to records management in order to identify states that had guidelines or policies, to obtain copies of those guidelines and policies, and to elicit information and guidance about website ERM from state records management professionals. At the time this phase of the study was undertaken, since many (if not most) states did not deal at all with the issue of how to manage website records, the study team located states that were dealing with ERM issues at any level.

It should be noted that no clear consensus has been developed to date on the definition of an electronic record; likewise, no definitive policies and procedures have been established for managing such records. NARA published an instructional guide in June 1996, "Records Management Requirements for Electronic Recordkeeping" (available at <http://www.nara.gov>), but this guide is still in draft form and could change substantially in the months to come.

The data presented in this chapter represents the product of the initial, comprehensive online assessment of state websites, information supplied by state webmasters, and responses to a survey posted on several listservs. This information must be considered the "best information available to date" as of early 1997; the investigators caution that the data constitute the results of only a first attempt at developing an overview of ERM activity at state websites.

(The next section of this chapter presents information gathered in a subsequent research endeavor concerning state ERM policies and guidelines: reports on a series of site visits to state ERM professionals and other data collection activities. Still, the information is current only as of late summer 1997.)

The methodology of the online assessment is described here, followed by analysis of the findings-including a state-by-state breakout and a discussion of what was learned through both the

listserv postings and e-mail and telephone contacts with state ERM professionals-and a discussion of the conclusions.

Methodology

The investigators targeted three resources for their data collection: the World Wide Web, records management listservs, and state employees associated with managing state websites. These three sources yielded a great deal of information useful in determining the appropriateness of a scripted online assessment. Each of the data collection methods is described in greater detail below.

State Website Review

This segment of the data collection involved a thorough search of all state websites. The goal was to find published guidelines for managing electronic records on state websites, as well as names, addresses, and telephone numbers of individuals who could offer guidance and direction in locating such information. The study team also looked for other website-related policies at the state level. Finding specific information on the WWW can consume hours of searching, especially when there is no clear starting point. Therefore, the investigators began their search effort with specific URL addresses known to identify state websites.

The website from which the state searches were launched was Piper Resources State and Local Government on the Net (<http://www.piperinfo.com/state/states.html>). This website provides a link to each state's official homepage and other government-related websites, both local and state. Each state search began from the state's official homepage and proceeded from there. All 50 states were searched by three Syracuse University graduate students familiar with the WWW and expert searchers. The searching was conducted between February 1 and March 23, 1997. It should be noted that some sites were found to be located at a different URL than the Piper website indicated. Every attempt was made to provide accurate URL's.

The searchers searched websites for each state with three main questions in mind:

1. Is there a place for policies and guidelines for managing the state's website?
2. Is information available regarding ERM policies?
3. Are policies and guidelines regarding website management and/or ERM available for downloading?

Another item noted by the searchers was the availability of a printout of policies and/or guidelines for website management and/or ERM.

Searchers began from each state's homepage, where they browsed the homepage and any other links to related to state webpages in a free-form fashion. Searchers looked at state departmental websites related to IRM, telecommunications, policy and planning, information services, administration, legislature, archives and public records, and records management.

Once the websites for each state had been searched, a review of the search logs was performed to see if any of the answers to the three questions was positive. A list of states with positive responses was compiled and compared with the findings from the telephone and e-mail surveys. The result was a list of 14 states that had information available on the WWW broadly relating to management of websites. States that had only print guidelines were not included in this final list. A second review was conducted to determine the exact kind of information posted on the websites by each of the 14 states relating to three records management issues: (1) creation, (2) maintenance and use, and (3) disposition. Specific questions relating to each of these areas included:

Creation

1 Do the guidelines provide definitions for "records management," "records," or "electronic records"?
2. Do the guidelines provide a statement of responsibility for website records management?
3. Do the guidelines state how website records should be designed for records management purposes (e.g., technical migration)?

Maintenance/Use

1. Do the guidelines address risk management or security issues with regards to ERM?
2. Do the guidelines state how website records shall be accessed or retrieved?

Disposition

1. Do the guidelines define how website records will be appraised or retained?
2. Do the guidelines discuss website preservation issues?
3. Do the guidelines discuss technical standards?

These questions were used to determine if there were enough criteria of potential value to perform a situated assessment on any of the 14 state websites.

It is important to note that states continually update their websites and may add ERM policy and guidelines information in the future. Therefore, at the completion of this study more states will have doubtless guidelines available on their websites.

Listserv Information

This segment of the data collection method involved the study team subscribing to several listservs pertinent to records management and monitoring the discussion, as well as initiating questions to provoke response. Study team members subscribed to these listservs as a means to determine whether any guidelines pertaining to state records management existed.

Over a two month period (January to March 1997), seven listservs, which appeared to be related to government information, archives, or records management, were subscribed to:

- ERECS-L
- ARCHIVES
- RECMGMT
- GOVPUB
- MUNINET
- MN-POLITICS
- MN-GOVT

The listservs selected for use were located by conducting a subject search on a database of listservs (<http://tile.net>). Professionals in the field recommended additional listservs. The appropriateness and quality of a listserv in providing relevant information to this study was further determined from the introductory message provided upon subscription to the listserv; this introductory message gave a brief description of the listserv and its purpose.

Study team members monitored the discussions on these listservs for information pertaining to website records management issues. In mid-February, researchers composed a message regarding records management policies relating to state and federal websites (formal policy guidelines for state/federal websites). This message asked three basic questions of the listserv subscribers and was submitted to the listservs with a copy of the study abstract. This message was sent out on February 25, 1997. The seven listservs were monitored until March 8, 1997, for responses to this message.

E-mail and Telephone Contact

The third and final segment in this phase of the data collection involved conducting e-mail and telephone surveys of key employees of all 50 states to gather further information regarding records management from actual state employees. This segment of the data collection was performed as a way to ensure that the states where no information was found by means of the other two data collection methods were not overlooked.

The e-mail message sent to each state described the project, identified the project objectives, and asked two questions:

1. Does your state currently have (or are you in the process of crafting) any guidelines or policies for managing and preserving electronic records contained on your government website(s)? If yes, how may we obtain a copy?
2. Could you provide us with the name, phone number, or e-mail address of the key person to contact directly for further information on the management and preservation of electronic records contained on your government website(s)?

An abstract of the project was attached to the e-mail message.

The e-mail message was directed to state librarians, state archivists, or IRM professionals. The e-mail addresses of these professionals were located by searching the WWW via the State Indices page of the Piper Information website (<http://www.piperinfo.com>).

Twelve states answered in the affirmative to the first question because they were in the process of working on guidelines. However, this response failed to produce any working drafts for the study team's review. The initial affirmative response at that time apparently meant that the state agency was discussing guidelines, but had not issued any in print or electronic format. For purposes of this study, the lack of actual policy drafts made comparative assessments impossible.

A second follow-up telephone survey was conducted with: Alaska, Kentucky, Louisiana, Maine, Massachusetts, Nevada, New Jersey, New York, Oregon, Texas, Utah, and Wisconsin. To ensure a greater response rate, follow-up telephone calls were also made to the remaining 38 states during a two-week period. Twenty direct contacts were made from the follow-up telephone survey.

Findings

The three facets of the search for policies and guidelines on ERM and website ERM resulted in the general finding that limited information or action is being taken by states regarding ERM and website ERM, and therefore limited information is available. The messages sent to the listservs, which collectively had more than 7,000 members, relating to ERM received few responses. Concomitantly, of those responses only half provided informational suggestions. The others wanted to be informed of the study's progress. The e-mail messages, telephone calls and facsimiles sent to the fifty states requesting information on guidelines and policies for website and ERM resulted in only 15 responses. Eight of the states that responded were currently working on or had promulgated some guidelines for managing websites and electronic records.

The search for state websites resulted in the identification of twelve states that had websites that provided some guidelines and policies relating to ERM or website ERM. For most states, however, no discussion or information was provided on state websites regarding whether or not records posted on state/agency websites are considered official records. The disclaimers that accompany many states' sites indicate that they are not responsible for accuracy of information or links to sites not managed by the state/agency. Detailed findings from the three facets of the information gathering methodology for locating guidelines and policies follow.

In-depth State Website Review

After the initial state-by-state website assessment was conducted, a list of 14 states was compiled for in-depth review. These 14 states had developed some sort of information, policies, or guidelines regarding website management and/or ERM and located them on their websites. The purpose of this in-depth review was to determine the specific information on the websites. The criteria used to determine the relevancy of this information to the objectives of this project are

outlined in the discussion of methodology above. After completing the in-depth review of the 14 states that initially appeared to address ERM issues, only one state, Texas, was found to have policies or guidelines that related directly to records management issues of websites. The other 13 states reviewed in greater detail proved to have nothing on their state websites pertaining to the managment of electronic records of websites. A brief summary follows of the information discovered on these websites:

Delaware <http://www.otm.state.de.us/>

Delaware's Office of Information Services posted its Acceptable Use Policy, which discusses its responsibility of "administering policies and procedures pertaining to the use of communications facilities and services by state government and to ensure compliance with these policies as well as other applicable laws and regulations" in accordance with Delaware Code Annotated, Title 29, Section 6353. The policy is a set of guidelines to be followed when using the State Information Transport Network (SITN) and other networks accessed through SITN, including the Internet. The guidelines address the issues of risk management and cost management by defining acceptable use of the state technology infrastructure. As citizens demand more accountability for tax dollars, an acceptable use policy puts a framework in place for monitoring technology use.

Connecticut <http://www.state.ct.us/shpac/>

Connecticut has some Internet-related policies developed through the State Home Page Advisory Committee (SHPAC), which can be downloaded from its website. Connecticut's policies include: State Home Page Project, Administrative Policies, State of Connecticut Internet Related Policies, Acceptable Use Policy, Universal Accessibility Policy, and State Home Page Policy.

Connecticut's Change Management Policy, found within the State Home Page Project Administrative Policies, describes the process to follow for implementing changes to the State Home Page Presentation. The policy was to be implemented by a Change Management Subcommittee, which will coordinate, track, evaluate, implement, and verify changes to the State Home Page Presentation. Change requests may include:

- Text editing to Existing Pages or Addresses
- HTML Programming Changes, Refinements or Additions
- Page Layout or Organizational Schemes
- Updating, Repositioning or Deleting Links
- Design/Graphics Changes Refinements or Additions
- New WWW Pages or Subject Categories

Within SHPAC's site is a section called "Resources and Tools," which includes a category called Internet Management, Implementation and Policy Issues. The category is intended to provide links to other sites with information on security issues, acceptable uses, e-mail guidelines, telecommunications service legislative changes, access issues, copyright and intellectual property

issues, etc. As of April 15, 1997, there were only a few links to other documents, none of which provided any information within the scope of this study.

Florida <http://www.dos.state.fl.us/dlis/barm/email.htm>
<http://www.dos.state.fl.us/fgils/disclaim.html>

Florida has a Department of State Electronic E-Mail Opinion posted from the Office of the General Counsel. Florida is documenting policy, or in this case "opinion," on the management of e-mail. Based on numerous questions regarding retention requirements of e-mail, Florida's Department of State (DOS) addressed some of the legal issues surrounding this topic.

The DOS's record retention standards "are not based on the method by which a record is created. Rather, retention periods are established based on the legal, fiscal, administrative or historical value of the information contained in the records." The opinion discusses the agreement of courts and other authorities on the "transitory" nature of some e-mail messages that have little or no official merit. According to Florida law, however, these transitory messages are still considered public records and must be treated as such. The DOS recognizes that imposing strict disposition rules for e-mail would create a burden for agencies. To overcome this burden, the DOS allows the disposition of records without further approval if the record is obsolete, superseded, or its administrative value is lost. Records that fall into this category are those which do not perpetuate, communicate, or formalize knowledge. The burden is still on state agencies to determine disposition of e-mail messages.

Louisiana <http://www.state.la.us/state/topics/infola.htm>

Louisiana's "Info Louisiana" is a cooperative effort (a grouping of websites) by state organizations to provide information about Louisiana and its government to citizens and the public and private sector. Their Frequently Asked Questions section describes Info Louisiana and the types of information that can be made available to users. The Office of Planning and Budget serves as overall project coordinator for Info Louisiana. Currently, there are 13 participants: Senate, House of Representatives, Supreme Court, Office of the Governor, Board of Regents, Civil Service, Culture, Recreation and Tourism, Division of Administration, Education, Emergency Preparedness, Environmental Quality, Health and Hospitals, and Labor. No guidelines on managing electronic records on websites or any Internet-related guidelines were available.

Maine <http://www.state.me.us/ispb/interpol.htm>
<http://www.state.me.us/sos/arc/general/admin/email.htm>

The website posts access issues and design issues related to e-mail records management.

Missouri <http://www.state.mo.us/oa/dpt/guide/policy.htm>
<http://www.state.mo.us/oa/dpt/guide/struct.htm>

Missouri posts its World Wide Web Policy, which focuses primarily on guidelines for developing agency websites. Some general oversight responsibilities of the Missouri Office of Administration include:

- Ensuring only government information is posted
- Ensuring approved design guidelines are followed
- Checking content for accuracy
- Maintaining security

A section called "Structure" advocates building homepages with a "clean, consistent structure," and the section provides links to the following topics:

- Web Page Templates
- Homepages
- URLs
- Document Length
- Design grid
- Navigation
- Forms and Searches
- E-mail and Mailboxes

New Jersey <http://www.state.nj.us/infobank/circular.cir9701s.htm>
<http://www.state.nj.us/infobank/circular.cir9702s.htm>
<http://www.state.nj/us/otis/guide.htm>
<http://www.state.nj.us/otis/styguide.htm>

New Jersey posted Circular Letter 97-01-OTS, which discusses the state's "Internet Presence Policy for New Jersey Government." The originating agency is New Jersey's Office of Telecommunications and Information Systems (OTIS). The broad purpose of the document is to establish an overall policy for creating, maintaining, and updating the state's public presence on the Internet. Each agency has the responsibility to determine the appropriateness of information posted on the agency's website. However, it also states, "information that is routinely distributed for public consumption, such as news releases, annual reports, brochures and newsletters, and public comments on public issues, should all be available from the State's Internet site. The Internet should also be used for public documents and final policy." There are no guidelines to help state agencies in determining the appropriateness of information prior to posting it on a website. State agencies face the challenge of making this determination themselves and of creating websites with information that might be difficult to manage.

The agencies are also responsible for "maintaining" and updating their electronic information and Web pages with assistance from OTIS. OTIS is responsible for developing and publishing guidelines for the development and maintenance of electronicly published state information on the Internet.

Circular 97-03-OTS posts the "Guidelines for Acceptable Internet Access and Use for New Jersey Government." OTIS is the originating agency. The broad purpose of the policy is to provide guidance on how to use the Internet and related services. The guidelines encourage the use of the Internet by state employees, while advising them to conform to professional standards, such as "network etiquette," state business use only, and using only approved fee-for-service providers.

Standards of conduct for Use of Internet Services are further defined in Part II of the Circular. For example, the guidelines advise state employees to identify themselves properly when using the Internet. The guidelines also identify reasons for revoking Internet access. Guidelines for the use of Electronic Mail Services on the Internet are discussed in Part IIa. For example, users should check e-mail in-boxes every day and use a standard signature block attached to e-mail going to recipients outside of the agency. Part IIb describes Guidelines for Use of Electronic Discussion/Newsgroup Services on the Internet. Among other things, the guidelines warn users that listservs can generate huge volumes of unwanted mail. Part IIc describes Guidelines for Use of TELNET Services on the Internet. The guidelines remind state employees that they are guests on another institution's machine and that users should follow certain courtesies.

North Carolina <http://www.state.nc.us/IRMC/documents/approvals/irmcinet.html>

North Carolina posted its "Use of the North Carolina Integrated Information Network and the Internet." The purpose of this document is to establish a policy regarding the use of the North Carolina Integrated Information Network and the global Internet. As with other state use policies, North Carolina's policy advocates professional and responsible use of the Internet by state employees. All public information disseminated over the Internet should be accurate, state employees should identify themselves clearly on e-mail, and all downloaded files should be scanned for viruses.

Also posted was the "State of North Carolina Information Resource Management Commission Policy and Guidelines on the Use of the Internet." This document discusses the state's position on the use of the Internet to disseminate public information and how public staff uses the Internet. Guidelines include:

- Information that should be published in electronic form
- Who has access to electronic information
- Support for agencies using the Internet to disseminate information
- How to establish access to the Internet
- Staff use of the Internet to accomplish job responsibilities, increase Internet skills, and develop professional contacts

No guidelines related to the management of electronic records on state websites.

North Dakota <http://www.state.nd.us/isd/newsletter/july96.html>

North Dakota posted a newsletter called "Information Link to Technology." The July 1996 newsletter has a section on Records Management that talks about public records stored on a variety of media. When asked what media the State Archives accepts, the answer was "Given a choice between paper and good quality microfilm, the Archives would, of course, prefer the latter. Our challenges include preservation of poor quality paper records, on one hand, and electronic records in varying formats, on the other. Preservation of the latter will require close cooperation between the Archives and the agency of origin in the future."

Ohio <http://www.ohio.gov>

Ohio's Department of Administrative Services posted policy number OPP-022 "Internet, Electronic Mail and Online Services Use and Abuse." The purpose of the policy is to provide guidelines to:

- Coordinate statewide Internet activity
- Help agencies develop and maintain websites and e-mail
- Help state employees understand their personal responsibilities when they use the Internet, e-mail and on-line services

The section on Agency Management Responsibility addresses some of the issues of website ERM. "Agencies that operate Internet-based services on existing servers shall insure that critical information is not compromised. Agencies shall monitor the information made available on their servers to ensure that it is appropriate and meets the state and agency standards for quality."

South Carolina <http://www.state.sc.us/nis_itg/hmpg_policy.html>

South Carolina has a "World Wide Web State Home Page Policy" from the State Budget and Control Board Office of Information Resources posted on its website. Its goals for the Home Page are:

- To make available to the Citizens of South Carolina information from their government which can assist them in their daily lives, their education and in doing business with their government
- To promote the State of South Carolina to the rest of the world in a manner which enhances tourism and economic development opportunities for the State

The South Carolina Home Page Policy guidelines briefly identify which agencies, organizations, or "entities" may link to the South Carolina Home Page. For example, the page is not intended for partisan political activity, but private colleges and universities (as part of the higher education infrastructure of the state) can be linked to the Home Page. A category called "Information Maintenance," states that the Office of Information Resources (OIR) "wishes to insure that information available through the State Home Page is as accurate and timely as possible. Given the

broad diversity of information sources, the providers of information must assume this responsibility. OIR reserves the right to eliminate a link from the State Home Page if this expectation is consistently violated and not corrected." The Information Maintenance section is a starting point for website ERM. The OIR recognizes that accuracy of information is a key issue for the usefulness of an agency website.

South Dakota <http://www.state.sd.us/state/executive/bit/is/document/internet.htm>

South Dakota posted on its website "Computer Policies" which include:

- Acceptable Use of State Computer Equipment
- Electronic Mail Policy
- Internet Access for the State of South Dakota
- Internet Resources for the State of South Dakota

The Electronic Mail policy indicates that e-mail is a public record because all messages "composed, sent, and received are and remain the property of the State of South Dakota and as such may be viewed or accessed at any time." As for developing websites, South Dakota has developed standards to establish the structure and layout of the site and provide consistency for all pages within the South Dakota site. No specific guidelines were given on managing electronic records on state websites.

Tennessee <http://www.state.tn.us/finance/oir/wwwgdln.html>

Tennessee posted on its website "World Wide Web Guidelines" which include:

- Introduction
- Policy for the State of Tennessee World Wide Web Site
- Getting Started
- Cost
- State Software Standards and How to Acquire
- Web Responsibilities
- Support Considerations
- Tips
- Creating Commissioner Images
- Counters and Restrictions

The policies state that agencies in the Tennessee executive branch may purchase and install only approved templates for banner pages and follow guidelines for approved fonts, icons, etc. Internet flow charts are kept on file; user inquiries must be responded to within 36 hours; departments may link to other government sites; and databases must conform to Information Systems Council regulations and Office for Information Resources (OIR) standards.

The OIR Web Responsibility section posts brief descriptions of staff responsibilities. For example, the OIR State Webmaster has responsibility for the following tasks:

- Respond to general OIR e-mail and webmaster e-mail
- Supply billing input to the Office for Business and Finance
- Make changes to F&A;/OIR banner page and Governor's home page
- Review and update Web guidelines on a quarterly basis
- Monitor applicable policies (statewide)
- Manage OIR content flowchart
- Ensure only current data is on OIR's webpages

No specific guidelines were given on managing electronic records on state websites. The Tennessee website states, "Be aware that all information (webpages, e-mail, etc.) is public information."

Texas <http://www.sos.state.tx.us/tac/13/I/3/index.html>

Texas appears to provide the most comprehensive set of policies and guidelines of all the states. These policies address the question of responsibility, and they define records management terms. The policies also seem to suggest how website records should be designed for records management purposes. They do not appear to address security or risk-management issues. They discuss how records are to be accessed and retrieved. The policies also address disposition issues in terms of records retention schedules.

New York <http://www.ctg.albany.edu>

Although the state of New York had nothing on its website regarding ERM, a range of significant work in this area is being done by the Center for Technology and Government (CTG) in Albany, New York.

Listserv Information

From February 25, the day the message was posted to the seven listservs, until March 8, 1997, twelve e-mail responses were received. The responses can be broken down into four content areas:

1. Request to have more information or see the results of the research project
2. Request to publish an article based on the findings of the project
3. Personal commentary on the project
4. Actual information or suggestions

The information and/or suggestions included the following:

- Check the NAGARA website

- Look at the GPO report on distributing GPO publications electronically
- Contact Dan Schneider at the Justice Department (schneidd@justice.usdoj.gov)
- Look at the February 1997 issue of *Records and Retrieval Report* which had the theme of "Government Information Policy: A Framework for Records and Information Management in the Public Sector"
- Go to the following websites: <http://www.leg.state.mn.us/leg/retain.htm> and <http://www.ai.org>.

These responses were informational in nature and provides no further insight or information pertaining to the degree in which states address the issue of ERM.

E-mail and Telephone Contact

As of April 7, 1997, a total of 32 states were contacted via e-mail and/or telephone. Of these, ten states replied that they currently had guidelines or they were working on guidelines. The other 22 states had no guidelines at all. The remaining states did not respond to the e-mail or have return telephone calls. Five of the twelve states with e-mail responses indicated they were currently working on guidelines: Alaska, Maine, Nevada, New York, and Texas. Specific information received from Alaska, Maine, and Texas is as follows

Alaska. The four-page Proposed State of Alaska Web Guidelines (sent as an e-mail attachment with no URL) was written to assist webmasters in designing and maintaining webpages, and included such information as appearance and placement of titles and headings, use of keywords, and physical layout of content. Guidelines for Alaska State Library Depository Program requirements and the State Archive policy were listed as "To Be Addressed." These guidelines are not specific to the management of electronic records on websites, but they fall into the category of having Internet-related guidelines. Uniformity of presentation reduces confusion for users and assists the user in locating information. Guidelines for uniformity of presentation also help the website developer by streamlining the development process.

Maine. Maine mailed the study team a print/bound copy of their guide *Electronic and Voice Mail: A Management Guide for Maine State Government* (Maine State Archives 1997). The current version of this guide may be found at: <http://www.state.me.us/sos/arc/general/ admin/email.html>. The guide is an easy-to-read booklet of 15 pages that takes the reader through the management of e-mail. At the top of the Contents page the following information appears:

> This document provides guidance to agencies regarding the record status of, and management approaches to, e-mail in Maine state government. It outlines legal requirements, types of records, and practical management options. The transition from binding retention schedules adopted by the Archives to effective records management in the office is difficult enough with paper. In the electronic world, the challenge is often greater. This guide is intended to ease that transition from formal mandate to practical application.

Topics included in the guide are:

- What is E-Mail?
- How Long Should I Keep E-Mail?
- Why Should I Care How Long I Keep It?
- What About Voice Mail?
- O.K. What Do I Do?
- Non-Record Materials - Delete at Will!
- Official Records - Retain as Required
- An E-Mail Management System
- Frequently Asked Questions About E-Mail Retention
- Functional Requirements for Record Keeping Systems
- Implementation Schedule
- Appendix I Definitions
- Appendix II Bureau Director's Mailboxes - Example
- Appendix III Other Correspondence Schedules
- Final Comments

This is a useful guide that will be updated periodically, according to the Final Comments section. This guide addresses several records management issues. It gives direction over the confusion of defining which e-mail messages are public records. It also addresses the issues of retention and disposition and serves as a training tool for personnel. In addition to this guide, the Maine Archives Records Management Services Division is to offer general training as part of its ongoing Records Officer training workshops. Maine's Records Management Analyst is also to respond to particular requests for assistance in organizing electronic records.

On its state website Maine posted "Information Services Policy Board Internet Policy and Use Statement of Principles" (<http://www.state.me.us/ispb/interpol.htm>). This document defines usage of the Internet. The creation of home pages must be approved by agency management. Among other responsibilities, the agency will keep the home page content current and work with the department's Statewide E-mail Committee representative in establishing Statewide E-mail Direction and Guidelines.

New York. New York has an extensive softcover manual titled, *Developing and Delivering Government Services on the World Wide Web - Recommended Practices for New York State* (Center for Technology in Government 1996). Chapter 6, "Managing your Web Service," briefly discusses the following topics:

- Integrating a Web service with agency business processes
- Maintaining editorial control over content
- Managing the records that result from electronic communication
- Maintaining stable and reliable services
- Keeping up with technology trends

- Building and maintaining a policy framework

This manual also devotes one page to the topic of managing the records that result from electronic communication. While recognizing the records management challenges of Web service delivery, the manual directs the reader to New York's State Archives and Records Administration (SARA) for help in dealing with these challenges. SARA makes available to state agencies a "System Record Keeping Evaluation Worksheet."

SARA also publishes along with the State Education Department and the State University of New York, three small booklets, "Managing Records in E-Mail Systems," "Guidelines for the Legal Acceptance of Public Records in an Emerging Electronic Environment," and "Managing Records in Automated Office Systems." Of these three, "Managing Records in E-Mail Systems" is the only one that deals with the management of electronic records in general. "Guidelines for the Legal Acceptance of Public Records in an Emerging Electronic Environment" deals with policies to ensure that electronic records are properly preserved for authenticity purposes in legal acceptance issues, but it does not discuss records that state agencies are posting on their websites.

New York State also has a manual published by the State University of New York and the State Education Department titled, "General Retention and Disposition Schedule for New York State Government Records." This manual contains a section on electronic data processing which devotes less than one page to Internet services. Guidelines for the minimum retention and disposition of agency Internet and employee Internet use logs are outlined in this section:

- 90363 Agency Internet Services Logs - Destroy after three backup cycles, but not before relevant audit and documentation requirements have been met.
- 90364 Employee Internet Use Logs - Destroy after three backup cycles, but not before any appropriate review and verification.

The Governor's Task Force on Information Resource Management Technology Policy 96-8, which deals primarily with New York State's use of the Internet, briefly outlines archiving and recording keeping policies as follows:

- Business applications made accessible via the Internet must include procedures to capture and maintain secure, reliable records as evidence of transactions, such as may be needed to meet administrative, fiscal, legal, and other management accountability needs.
- An electronic copy of all electronically distributed publications must be deposited with the State Library.

New York's CTG (<http://www.ctg.albany.edu>) also published an extensive 135-page report titled, *The World Wide Web as a Universal Interface to Government* (1996). This report is the result of input from 170 participants from state and local government, and the private sector in a one-day workshop called New York State on the Internet. Among many other issues, this report discusses the challenges of managing electronic records in Web service delivery.

Texas. In Texas, the 74th Legislature amended the state documents depository law to require that the State Library serve as a clearinghouse for state electronic publications. These amendments could serve as guidelines for the management of electronic records on websites (<http://www.sos.state.tx.us/tac/13/I/3/index.html>). The Texas State Library now provides centralized access to electronic information from more than 50 state agencies and about 30 state colleges and universities. It also works with the Texas Department of Information Resources to maintain the State of Texas Web Site. The legislative amendments arose because of the realization that more and more state agencies are providing publications in various electronic formats and have been using the Internet as their medium of choice for many of these publications. The legislative history reports on the amendments raise some challenging records management issues:

- One person thought that, in one part of the law, Subsection §3.3 (d)(2)(C), the language requires state agencies to ensure that Internet-accessible publications, with a few exceptions, remain accessible "by Internet connection" for five years from the date of release or last modification. The person pointed out that, in some cases, this could inadvertently impose an unreasonable burden on state agencies and confuse the public as well, due to multiple versions of publications being available.
- A person noted concerns with another section, §3.9 (c)(2)(C), which states that any changes to the "scope and content" of an Internet-accessible publication must be reported within one working day. The person felt that, because the rules contain no guidance on what is meant by "scope and content," the only way an agency could be certain of compliance with this rule would be to report every single change in a publication's content to the State Library. The person suggested that the words "and content" be deleted so that agencies will not be compelled to report every minor change, but will still report changes that affect the scope of a document. The person also suggested further defining the word "scope" to provide greater guidance to state agencies.

The states contacted via telephone who were working on guidelines for ERM are; Arkansas, California, Nebraska, and North Dakota. However, none of these states provided the study team with a current draft.

Other states contacted by telephone indicated that they were currently discussing issues of ERM on websites. North Carolina in particular, noted that they were dealing with issues pertaining to ERM on a broader scope than just websites. There was a keen interest from the majority of these states in the issues of managing electronic records and everyone was interested in seeing the results of this research.

Conclusion

For state representatives and others working in the field of records management, the issue of obtaining quality guidelines for the appropriate storage and maintenance of electronic records in the Web environment is increasing in importance. The lack of guidelines pertaining to the management

of records on state websites is evidenced by the fact that little to no records management policy or guidelines was available on state websites.

After an in-depth review of 14 states that initially appeared to be providing information relating to website records management, it was found that only Texas had information that specifically addresses basic aspects of record creation, use, and disposition of website records. If the basic criteria used to perform the in-depth review were used as a basis for the scripted online analysis, none of the state websites with records management information could be considered relevant. Scripted online analysis is a data collection methodology whereby proxies assess a specific website, or part of that site, by a predetermined "script" of activities. Those activities are based on specific criteria regarding the quality of the website.

One objective of this part of the research project was to conduct a preliminary assessment of state websites regarding records management content. A second objective was to address the question of whether to conduct a scripted analysis of state websites. The information gathered through the three data collection methods suggested that such a methodology would not have been useful. In other words, very little would have been learned from such an effort since very limited records management information is posted on these websites.

The findings in Phase I of the project suggest that a more fruitful data collection method would have been focus groups, expert interviews, case studies, and site visits with professionals in the field who deal with ERM for the World Wide Web. These techniques were expected to prove more successful in learning about the requirements for the creation, use, and disposition of website records management. Focus groups would include interviews with professionals (asking for their future projections), case studies would involve longitudinal studies of current website records management projects, and site visits would observe projects underway. These data collection techniques, along with the other components of this project, would enable the researchers to provide a higher level of information and guidance for states as part of the project's final report.

State Site Visits and Other Data Collection Activities

In addition to compiling the online assessment of state ERM policies and guidelines described above, and analyzing the current literature on ERM and website ERM (Chapter 2), the investigators conducted site visits with ERM professionals in three states. The investigators also held a focus group and made at presentation at the National Association of Government Archivists and Records Administrators (NAGARA) annual conference in July 1997 in Sacramento, CA. The state site visits, the NAGARA Conference, and conclusions related to both aspects are the subjects of this section.

After compiling a list of the states with ERM guidelines and policies, the investigators sought to identify which of those states would participate in a site visit by members of the study team. New York and Connecticut expressed willingness to participate in site visits, as did Virginia, which, although not originally on the list as having ERM guidelines or policies, stated its willingness to

participate in a site visit, too. See Appendix __ for a detailed summary of the information these three states provided at the time of scheduling the site visits regarding their ERM guidelines and policies.

A member of the study team contacted representatives of each of the three states to schedule a site visit. Outlined in the Methodology section below is the procedure used to conduct these site visits. Also presented are descriptions of each site visit and the major findings for each.

Methodology

The primary objective of the state site visits was to gather data from state employees and professionals who are involved with or practicing ERM--beyond what was identified in the first phase of information gathering. The site visits performed by the study team were an effort to augment the information gleaned from the review of the status of states' records management about best practices, guidelines, and the key issues of dealing with website electronic records.

In conducting the site visits the study team followed standard site visit methodology as prescribed by prominent social researchers such as Babbie (YYYY). The study team developed a set of probes for use in the state site visits from the data collection techniques performed in the review of the status of states' records management described in the preceding section and the literature review. The probes consisted of a list of topics and their corresponding questions that reflected major ERM issues related to ERM (see Appendix A for state site visit probes).

Given the lack of knowledge at the state level and among other professionals in the field at the time of the state site visits, it was unclear just what were the issues of ERM for websites. Therefore, conducting the state site visits was an attempt by the study team to clarify the ways in which states were dealing with the management of records on state websites and to pre-test for subsequent data collection activities the necessity and appropriateness of the topics discovered to be related to ERM.. Overall, the state site visits had the following objectives:

- Obtain a clear picture of how ERM occurs in the field
- Discover how states are organized to handle ERM
- Learn what are the major issues facing ERM are at the state level
- Determine the kinds of guidelines needed at the state level for a successful ERM system
- Obtain information that will help organize a coherent arrangement of topics related to ERM of state websites.

By meeting these objectives, the study team was able to obtain a more precise perspective of the issues facing ERM of state websites. The benefit of such a perspective aided the study team in developing quality policies and guidelines for the successful implementation and maintenance of a state website ERM system.

New York State Archives and Records Administration Site Visit

Members of the study team visited the State Archives and Records Administration (SARA) in at Albany, New York, offices on June 10, 1997. The visit lasted approximately half a day and consisted of several interviews with SARA staff and individuals from the state library.

SARA is a unique organization in the state of New York; SARA does not report to the governor's office, but rather is responsible to the Board of Regents at the State University of New York. SARA is also unique in that it is one of the last state archival organizations to be established and to have a staff of over 85 full-time employees. SARA's three mandates include:

- Regulatory authority over state agency records
- Advisory and technological assistance and storage service to state agencies
- Acquisition and preservation of archival records of the three branches of state government

SARA advised the investigators of its three main objectives: education, involvement, and service. SARA is involved in educating state agencies regarding issues of emerging technologies and is developing tools and services to help agencies build records systems and policies. In meeting these objectives, SARA employs a business processes approach. When working with a state agency, SARA attempts to determine what are the business practices of that agency before determining what records management practices are necessary.

Individuals interviewed during the site visit completed a participation form (Appendix C) presented to them by the study team. Participants rated the importance of some key issues to the successful management of electronic records on a scale of one to five with one being "very important." The means of the ratings of these issues are illustrated in Table 3.1. Individuals also indicated how long they had been working in the area of records management and in ERM. The average number of years for the individuals with whom the study met ranged from 6.8 in the area of records management to 5.4 in the area of ERM.

Table 3.1. Rating of ERM Issues by SARA

ERM Issues	Mean Rating
Authenticity	1.0
Accountability	1.0
Security	1.0
Privacy	1.3
Training/Education	1.1
User Evaluation	1.6
Responsibility	1.5
Preservation	1.0
Liability	1.3
Feasibility/Cost	1.3

Findings from Site Visit with SARA

The following list summarizes the major issues identified during the site visit with SARA. These issues are discussed in detail below.

- Service versus regulatory approach
- Emphasis on developing relationships
- Difference between a document and a record
- No difference between traditional records management and ERM
- Records management not necessary for web postings
- Websites not records in the sense of official records
- Determining an agency's business purpose on the web preliminary to developing records management guidelines for records on the web
- Website ERM not an issue until state agencies begin using web for business transactions
- Question to ask agencies: "How do you manage the records created when you transact a particular kind of business over the web?"
- Managing a website in terms of its business purposes very different from managing information on a website

Determining Business Process. The first issue of concern for SARA, when working with an agency, is to determine that agency's main business process. By so doing, SARA believes that its staff can then better advise that agency about the records management procedures necessary for

successfully managing the documents and records associated with that business process. SARA believes that the only problem facing agencies in this new environment is determining what function a particular record has and how that record serves the business process of the agency in the Web environment. SARA has taken on a service approach by trying to develop a toolkit that agencies can use to determine what their business purpose is, and then what ERM practices they need to conduct that business.

The success of such an approach, however, is in question. Particularly since SARA is uncertain about what constitutes an official record as compared to a document, and holds to the notion that agency websites do not contain official records and, therefore, do not require records management. The issue of concern in this approach is the degree to which there are requirements for managing records on websites divorced from business practice. It is difficult to develop a set of universal guidelines and policies for successful management of records on websites, when it is unclear what type of records exist on a website and whether and how these records can be tied to the business processes of an agency.

SARA believes that ERM issues vary from agency to agency, and not until one understands what is the business process for a particular agency can ERM guidelines be advocated. The ERM guidelines of a website must be tied to the business process transacted over the website if the correct question to ask an agency is; "How do you manage the records created when you transact that particular business over the web?" Or, in a different light, what are the ERM requirements to conduct your business over the Web?

Another issue of concern is the degree to which the management of a website for its business purposes differs from management of information on a website. SARA envision these as two distinct concepts. However, it seems that in both cases one is dealing with records. Once the business purpose of a record has been determined, it is still an electronic record and must be managed the same way a nonbusiness-related website record is.

Service versus Regulatory Approach. Coupled with SARA's business process approach is its service approach. SARA believes that one of the problems with ERM at the state level is that government is decentralized, thus making it difficult to implement policies. SARA, therefore, has adopted a service rather than a regulatory approach by helping agencies deal with the problems associated with records management. As SARA states, "Agencies do not like to do regulatory stuff, it is not interesting to them." Therefore, records management policies must be integrated into how agencies conduct business. One can create all the policies and regulations in the world, but getting an agency to implement them is difficult.

Furthermore, most agencies are overburdened, and records management concerns are often at the bottom of their lists. This service approach, then, is a way to get agencies to practice records management. As SARA suggests, agencies may not know what ERM means, but if one starts listing the issues pertaining to records (e.g. authenticity, responsibility, accountability, security, privacy, liability, etc.), agency personnel will know what their requirements are relative to their business

practices. Any records management techniques used for websites must be easy, have specific benefits for the agency, and not require much time and/or resources, if it is to be successful.

Building partnerships between records managers and the agencies is essential to the success of this service approach. Such partnerships will flourish with a service perspective from archivists and records managers and *not* with a regulatory enforcement perspective.

Traditional Records Management versus Electronic Records Management. SARA's view of ERM is no different then its view of records management in a print environment. The concerns that exist for print records (e.g. authenticity, responsibility, accountability, security, privacy, liability, etc.) apply to electronic records, the only difference being the medium. As SARA interprets it, the definition of a record is found in the state statutes. However, SARA attempts to teach state agencies a suitable means of recordkeeping within the context of the agency's mission, and not necessarily according to what the definition of a record is.

Many of the individuals at SARA are themselves uncertain of what constitutes an official record. In fact, SARA personnel noted that state agencies currently do not have postings on their websites that constitute records of concern--in other words, records or documents that require records management. When questions arose about the degree to which the entire website itself represents a record, SARA personnel were unable to agree among themselves. Furthermore, when the study team presented SARA with examples of how website records may in fact be different in many respects from traditional records and, therefore, require new and innovative guidelines to manage them, SARA responded with disbelief. They failed to see the possibility of such records existing, and did not believe that records management requirements would be necessary for Web postings.

Document, Record, Publication, Official Record, or What? In a meeting with some of the state librarians, an issue arose about the difference between a record and a document. These individuals took the approach that a record is an internal working document of an agency, and a document is something that is published by an agency (e.g., memo, manual, publication, etc.). This is an important distinction; what the librarians and archivists are concerned about are records, not documents. Furthermore, both librarians and SARA took the position that agency websites do not contain records and therefore are not managed. In challenging this position, the study team questioned whether liability issues were associated with what was on agency websites. In other words, when someone translates a document into HTML, it may change that document; therefore, are agencies responsible for the authenticity of that information? The librarians had a useful solution to this situation: add a disclaimer. This is a practice that the webmaster for the state library currently practices. When the state library is given a document by an agency and it is put up on a website, a disclaimer is added that states something to the effect: "All information posted on this website appears as it was received by the issuing agency or person. There is no guarantee as to the information's accuracy, authenticity, or length of time it will appear on this website."

When questioned by the study team about the possibility of a website itself being a record, and that there may exist totally new kinds of records given emerging technologies, the librarians, like SARA personnel, were unprepared to imagine such a situation. This suggests that definitions are critical. If the notion at the state level is that websites do not contain official records, or any type of record, for that matter, that must be managed and stored, then the potential for loss of a wealth of information is alarming.

Center for Technology in Government (CTG) Site Visit

Members of the study team visited the Center for Technology in Government (CTG) in its offices at Albany, New York, on June 17, 1997. The visit lasted approximately half a day and consisted of several interviews, followed by a focus group attended by four researchers and six CTG staff. CTG is a research based organization located at the State University of New York at Albany. CTG is currently working on a project in collaboration with SARA: Models for Action: Developing Practical Approaches to Electronic Records Management and Preservation. Although CTG is an independent organization, its philosophy and approach to the management of website records is similar to that of SARA.

Individuals interviewed during the site visit completed a participation form (Appendix C) presented by the study team. Participants rated the importance of some key issues to the successful management of electronic records on a scale of one to five with one being "very important." The means of the ratings are illustrated in Table 3.2.

Table 3.2. Rating of ERM Issues by CTG

ERM Issues	Mean Rating
Authenticity	1.2
Accountability	1.7
Security	1.7
Privacy	1.7
Training/Education	2.0
User Evaluation	1.5
Responsibility	1.7
Preservation	2.0
Liability	2.2
Feasibility/Cost	1.5

Individuals also indicated how long they had been working in the area of records management and ERM. The average number of years the individuals with whom the study met at CTG have worked in the area of records management and ERM is zero.

Findings from Site Visit with CTG

The following list summarizes the major issues identified during the site visit with CTG. These issues are discussed in detail below.

- Appropriateness of a business process reengineering (BPR) perspective for records management
- Definition of records dependent upon the associated business process
- CTG's records management perspective: how to increase state government effectiveness--reengineering government through information technology (IT)
- Degree to which the BPR approach is transferable to other states and agencies
- Records management technology driven or not
- No difference between multimedia/Web-based documents and print documents in terms of recordkeeping requirements
- Need for different terminology for new phenomenon of website records management
- Building partnerships with agencies
- Internet versus intranet with regard to records management
- To what degree the Web is a means of convenience for dissemination

Appropriateness of Business Process Reengineering. CTG adheres to the same view as SARA regarding BPR, which places records management secondary to determining an agency's business process. The study team raised the issue of the appropriateness of a BPR model for management of website records. The question arose as to whether records management of websites should be integrated as a component of business processes before or while the business process is being reengineered.

Both CTG and SARA staff believe that records management (whether print, electronic, or Web) cannot stand alone as a separate activity or process. Agencies do not care enough about records management unless it is part of, and understood to be, a key component of the agency's core business processes. Archivists and others who "preach" records management do not have a chance of convincing agencies to "do records management as a standalone activity." CTG's solution to this problem is to not tell agencies you are helping them do "records management," but just to help them do their core business processes better, while at the same time incorporating records management as a normal part of that process. In other words, do not call yourself records managers. This is an interesting approach and appears to be part of an IT or systems approach. CTG and SARA address records management from how to increase overall state government effectiveness.

The transferability of a BPR approach to other states and agencies is also of concern to the study team. Both CTG and SARA admit that the state of New York's layoff of 30,000 employees

has contributed to the need for a BPR approach for reinventing state government. There is also wide agreement at the state library, the state archives, and CTG that records management in a BPR framework is appropriate. It is not known whether this approach would readily transfer to other states where records management is viewed from a different perspective and the same labor force conditions do not obtain. Although the BPR framework is an attractive idea and one that has gained success in the private sector, it is not clear that such an approach would be useful in the government environment.

The greatest concern over the appropriateness of the BPR approach is the degree to which there are basic "principles" for records management of websites, as opposed to situation-specific rules dependent on the agency's business, and the use and purpose of records, given that business. Although CTG sees records management as agency and situation dependent, the degree to which CTG can integrate life-cycle management of information systems and recordkeeping processes as an essential part of an agency's business process is unclear.

Definition of a Record. CTG's definition of a record depends upon the business process with which it is associated. Therefore, different agencies with different core business processes produce different types of records. Arguments posed by the study team about the definition of a record, an official record, and a document, simply were not useful to CTG. They were more concerned with how to define records in the context of what is required for the audit trail or as evidence of government business within a specific business process. However, as the study team pointed out defining records overall is different from defining them at the agency level. For example, the following perspectives for such a definition must be considered:

- FOIA laws
- Preservation
- Legal evidence
- Business process

These perspectives suggest the need for new terminology for the new phenomenon of website records management. Traditional records management terminology conjures up images and concepts that may impede individuals' ability to think about a new type of record that is interactive, multimedia, hyperlinked, and learns on its own.

Is Records Management Technology Driven? The focus group participants discussed the issue of whether records management is technology driven. CTG believes that records management of websites should not be technology driven. When the study team suggested that in fact it may be technology driven, CTG did not agree. It is impossible to know what new technologies will emerge in the future that will provide new types of records. CTG's position is that technology is not driving records management, but influencing it. Nonetheless, a multimedia or hypertext record is a different creature than anything that existed before.

The issue arose as to whether the unique aspects of hypertext-linked records require management techniques different from techniques used to manage simple electronic or print records?. Do systems of recordkeeping and other traditional records management tasks vary for these new kinds of records? How would one develop a retention schedule for a multimedia hypertext document that is changing everyday and that may in fact post different information and have different uses from one week to the next? CTG did not respond to these issues, other than to cite their practice of determining the function of those records in terms of the business process. Furthermore, CTG appeared to believe that the records management process is the same, regardless of the format or carrier of the record.

The study team questioned the degree to which the records management process for websites varies from other records management processes. The dynamic nature of a website and Web-based records is very different from that of the print world, where a record is unchanging. In an electronic environment, a record is dynamic. In the Web world, a record's content may change, and there can also be an element of interactivity between the record and users. Such interactivity helps distinguish a Web-based record from other types of records. In addition, a Web record is as an adapting, evolving learning record (e.g., cookies that assist the Web record and learn about the user, and then modify the record, given what they have learned).

The study team presented CTG with an example of a health department that has personal medical files on individuals. These files are dynamic and changing due to interactivity in the use of these files, the files' exchange of information with other files, and the files learning how various users want various types of information presented to them. CTG was unable to envision such business practices occurring over the Internet. Like SARA staff, they embraced a vision that precluded foreseeing the types of situations and issues that could emerge as technology evolves and changes. Ultimately, they see records management as localized to agencies' intranets, and then the Internet overall.

Internet versus Intranet. CTG identified a trend whereby agency intranets may be the mechanism for transmitting sensitive and important information rather than public access websites. It is unclear whether this trend is actually occurring or simply a construct that fits in well with CTG's business process model. As CTG sees it, agencies can better control intranets and those who have access to them for specific business process. Furthermore, CTG advised the study team, state websites are merely a means of convenience for dissemination and access to selected information (not records) that agencies choose to make available. As a matter of convenience, they do not contain official records and therefore do not require standard records management techniques. This perspective is debatable, especially in view of the concept of technology driving records management. Moreover, even if intranets are more widely used among agencies than the Internet, ERM issues are inevitably associated with these intranets?

Instead of us developing guidelines, which are likely to vary considerably from state to state and agency to agency depending on the unique situations in each state, CTG suggested developing processes and suggestions on how to get states to think about records management of websites and

related issues. At this point, they observed guidelines may be too early, but educating state officials about the issues they will need to face could be very important.

State of Connecticut Site Visit

Members of the study tean visited the Office of Policy and Management (OPM) in its offices at Hartford, Connecticut, on June 12-13, 1997. During this visit the study team also met with individuals from the state library. The visit lasted a day and a half and consisted of several interviews followed by a focus group attended by four researchers and an individual from OPM, an individual from the judicial branch and an individual from the Secretary of State's Office. Many of the individuals with whom the study team met at OPM are responsible for the State Home Page Advisory Committee (SHPAC). SHPAC is an advisory committee to the Office of Information Technology and has open enrollment.

Every individual with whom the study team met during the site visit completed a participation form (Appendix C) presented to them by the study team. Participants rated the importance of issues key to the successful management of electronic records on a scale of one to five with one being "very important." The means of the ratings of these issues illustrated in Table 3.3.

Individuals also indicated how long they had been working in the area of records management and ERM. The average number of years the individuals ranged from 19.3 in the area of records management to 6.3 in the area of ERM. However, it is important note that, of the eleven individual with whom the study team met over the day and a half period, these averages were derived from only three individuals. The other eight individuals had no experience working in the either the area of records management or ERM.

Table 3.3. Rating of ERM Issues by Connecticut

ERM Issues	Mean Rating
Authenticity	1.3
Accountability	1.3
Security	1.5
Privacy	1.6
Training/Education	1.7
User Evaluation	1.9
Responsibility	1.5
Preservation	1.4
Liability	1.7
Feasibility/Cost	1.8

Findings from Site Visit with State of Connecticut

The following list summarizes the major issues identified during the site visit with Connecticut. These issues are discussed in detail.

- No official records appear on the Web, therefore, website ERM not an issue
- Implications of website ERM in the state is on three levels: state agencies, state archives, and state library
- Definition of a record, document, publication, official record and public record
- Determination by public records administrator of what is and is not a public record
- State archivists currently incapable of dealing with print records, let alone electronic records
- Uniqueness of Connecticut in that all three branches of government involved with records management and archives issues
- Technology applications driving electronic records creation
- Degree to which website is a mirror image of print records
- Tremendous void between policies and practice.

Website Electronic Records Management: Issue or Not? Some Connecticut state employees believe they have no official records on their agency's websites; therefore, website ERM is not an issue. They did state, however, that they may have "public records" on their websites. The issues then becomes the degree to which agencies are responsible for managing "public records" on their websites. The notion that websites do not have official records is further complicated by the

belief of many of these state employees that everything on their agency's websites is a copy of the official item, which is housed elsewhere. With such a belief, the question of managing website records is moot. Whether or not official records actually appear on agency websites and whether this view is simply a rationalization remains unclear.

This "mirror image" notion of agency websites was questioned by the study team. When the study team hinted at the possibility that there could be electronic records of a multimedia type for which there would not be a print "mirror" image, many individuals disagreed. The study team also suggested that an official document can have differences from the original when translated into HTML for the Web. Again, these individuals failed to recognize this problem and held to the position that management of website records is not necessary because there are no official records on state websites.

Several state employees envisioned the management of website records to be no different from the management of electronic records. The example of a multimedia record or document that contains hyperlinks poses problems for this view. These are records of a type that, prior to Web technology, did not exist. It is clear that managing true multimedia records is not well understood as a records management issue or problem. One individual even asked, "But would there *really* be such a thing as multimedia records?"

Need For Definitions. Part of what hinders a vision of website ERM is the lack of clear definitions. Considerable confusion reigns over basic key terms such as record, publication, document, official record, public record, original record of source, etc. Each interviewee seemed to have his/her own spin on what these terms mean. The Connecticut law that defines a public record has at least three different contexts: FOIA, disposition and destruction. Furthermore, the public records administrator (in the State Archivist's department) decides what is and what is not a public record. Even though the state puts forward an extremely broad definition of what constitutes a public record, the public records administrator indicated even that is not always clear, and record status may depend on the situation, use of the record, purpose of the record, conditions under which the record was created, etc.

Without clear definitions of what constitutes a record, publication, document, official record, public record, and original record of source, the management of a website becomes virtually impossible. This is an issue that stands to becomes even more problematic when multimedia records become commonplace.

Is Technology Driving Electronic Records Creation? The question of whether technology applications drive electronic records creation is an important one. Can one really choose to ignore multimedia records? Some participants acted appeared to believe that they could decide that a multimedia record simply is not an official record--although the transcript of that record would be. The refusal to address the possibility of such a record was a common theme.

Multimedia records will be very different from anything that existed before the technology was available to create such a record. Do multimedia records possess unique aspects records that require records management techniques different from those used to manage simple electronic or print records? Will systems of recordkeeping and other traditional records management tasks vary for these new kinds of records? The individuals interviewed in Connecticut believed not, because even if such records were to exist, they claimed the records would not be official records or would not be on an agency's websites.

Inter-Agency Relationship in Records Management. Connecticut is unique in that all three branches of government are involved with records management and archival issues. The existence of the interagency SHPAC is a model for how agencies and branches across state government could manage website and electronic records. This advisory committee includes members from the State Library, General Assembly/Legislative Branch, Secretary of State's Office and the Governor's Office. This appears to be a unique relationship among these different branches of government at the state level. Even though website ERM is (according to statute) a state library and archive concern, the implications of resolving this problem at the state level is multifaceted (state agencies, state archives, governor's office, General Assembly, Judiciary, and state library). Some issues arise with this model, however: what is the pecking order, who is in charge of what, and who has the authority and the power to deal with ERM issues on websites?

Policies versus Practice. The key factor in the success of website ERM policies is the implementation of those policies. It is important to understand the context for statewide records management of websites: Government is downsizing, and there is a lack of resources and staff. Work requirements, however, have not been downsized. For many agencies, records management of websites is last on a list of several things to worry about. As one individual indicated, "They can create as many policies as they want, but they may not be implemented by state agencies." One cannot require agencies to do ERM if the personnel do not want to do it, and policy in and of itself will not make them do it.

The important consideration here is how to get agencies to *want* to do records management of their websites. This is a problem especially with downsizing, and confusion as to what kinds of records exist on a website. The state archivist indicated that the archives are currently out of space for print material. If an agency were to appear at the door with boxes of records to be archived, they would be turned away. This is not to say that, if agencies started sending electronic records, the archival office would not know what to do. To deal with this problem agencies in the state of Connecticut have Records Management Liaison Officers (RMLOs). In reality, RMLOs know little about ERM of agency websites. Many have no training and are already overburdened with other responsibilities.

The state library, on the other hand, is trying to do something about managing records on the state library website. They are considering taking a "picture" of the website, on a regular basis such as weekly, that contains as they put it, state documents and publications as a means of having an official record of what was on that site at particular points in time. This approach is exactly the kind

of practice the study team was hoping to find occurring at the state level. The reality is that most states are just beginning to think about management of website records, much less actually trying to do something about them.

Commonwealth of Virginia Site Visit

A principal co-investigator for the project conducted a half-day site visit to the Commonwealth of Virginia on June 24, 1997. Interviews were conducted in a group setting with webmasters in the morning and with records managers in the afternoon.

The Council on Information Management (CIM) was established by the Virginia General Assembly in 1988 to promote "the cordinated planning, practical acquisition, effective development, and efficient use of information technology resources . . . serving the needs of agencies and institutions of higher education in the Commonwealth." Organizationally, CIM is under the Commonwealth Secretary of Administration. The state website is administered by the Department of Information Technology (DIT), which is parallel to CIM in the state organization. Records management and archives are the province of the Library of Virginia, which is governed by a board of regents. Hence, while CIM and DIT are somewhat closely associated, records management is at some remove.

CIM has recently been tasked to develop an Internet policy for state agencies, so the site visit was timely from CIM's viewpoint. In addition to conducting the meetings with webmasters and records managers, the project co-investigator spent some time advising CIM staff on Internet policy issues.

Individuals interviewed during the site visit completed a participation form. Participants rated the importance of some key issues related to successful management of electronic records on a scale of one to five with one being "very important." The means of these ratings of these issues are illustrated in Table 3.4.

Table 3.4. Rating of ERM Issues by Virginia

ERM Issues	Mean Rating
Authenticity	1.2
Accountability	1.4
Security	2.0
Privacy	2.5
Training/Education	2.1
User Evaluation	2.5
Responsibility	1.4
Preservation	2.3
Liability	1.7
Feasibility/Cost	2.5

Findings from Site Visit to Commonwealth of Virginia

The following list summarizes the major issues identified during the site visit to the Commonwealth of Virginia. These issues are discussed in detail below.

- Overlapping authorities for policy development
- Absence of coordination in policy development
- Uneven access to and use of Internet and electronic mail
- Uneven development of agency-based electronic mail policies
- Uneven development and coordination of agency websites
- Development of Virginia Information Providers Network Authority (VIPNET)
- Websites not official communications
- Policy guidance for ERM exists, but the extent of its observance is unknown
- State agencies are undecided as to whether website materials can be official records
- Virginia state archives do not accept records in electronic form for permanent preservation

Overlapping Authorities for Policy Development. CIM consists of an appointed council of private citizens and a small secretariat of fewer than ten persons. CIM is lodged organizationally under the Secretary of Administration. Also reporting to the Secretary is DIT, an organization parallel to CIM.

The records management and archival function for the commonwealth resides with the Library of Virginia (LV). The state Archivist reports to the state Librarian and the Library is overseen by a

board of regents. Virginia has a very old archival tradition, the state archives having been established in 1902 and the records management program in 1950. The Virginia archives are the most heavily used of any state in the country, largely because of Virginia's colonial history and the fact that Richmond was the capital of the Confederacy during the Civil War.

This organizational set-up means that various parts of the state government may have overlapping authorities when it comes to state information policy. When CIM took up the task of enunciating a statewide information policy several years ago, the records management officials in LV issued their *Guidelines for Managing Electronic Records* (1994). CIM has now been tasked to develop state Internet policy, a development that LV is watching with considerable interest.

Absence of Coordination in Policy Development. At present, development of Internet policy, e-mail policy, and website policy is uncoordinated within Virginia. As noted, CIM is tasked to develop Internet policy. CIM intends to include some aspects of e-mail policy and website policy in its overall Internet policy, but the effort is just beginning.

Uneven Access to and Use of Internet and Electronic Mail. CIM, DIT, and other agencies report that access to and use of both Internet and e-mail are very uneven. If one speaks of the Virginia higher education agencies, Internet access is virtually universal and highly developed. Elsewhere in the state bureaucracies, great variation prevails. Some have no access as yet; others are just beginning to explore Internet; and still others have fairly well developed access and use.

DIT has been charged with developing a directory of e-mail addresses for state employees, but has not yet accomplished the task. Introduction of this topic led to discussion as to how the commonwealth would handle the privacy aspects of such a directory. In Virginia, all state documents are public records, unless explicit provision is made to the contrary. An e-mail address directory would likely become a public record. Yet officials also fear the public's use of such a directory to bombard state employees with advertising.

Uneven Development of Agency-Based Electronic Mail Policies. Agencies are uneven in the extent to which they have developed policies covering use of electronic mail. CIM reports that several agencies have such policies, largely limited to treating the question of appropriate use of e-mail by state employees. LV has guidelines on e-mail as records, which agencies may or may not be aware of and observe. Participants in the site visit said that e-mail usage was fairly heavy in state agencies, although its distribution was uneven. Also, the agencies face the problem of having incompatible systems.

Uneven Development and Coordination of Agency Websites. DIT operates the Virginia Commonwealth government home page. DIT offers to other state agencies the ability to link into the state home page. Some agencies take advantage of the offer; others do not, preferring to develop their home pages independently and acquiring their own URLs, unrelated to the state home page URL. Virginia has a long tradition of autonomy of state agencies, so uncoordinated home page development is not viewed as atypical or especially different from other problems of coordination.

DIT reported that webmasters in state agencies have no particular training for their roles. They undertake the webmaster job by "backing into" it; perhaps there was no one else to take on the task, or perhaps they acquired the job by being personally interested in Internet usage. The records management program in LV offers training to the 1,500 records officers in all state, county, and local agencies, because all public records in the state come under state records management statutes. They have not considered the possibility of offering records management training to webmasters.

Development of Virginia Information Providers Network Authority (VIPNET). Coordinated development of home pages and electronic access to state government information may well be just around the corner for Virginia. The Virginia Assembly just passed legislation to create VIPNET, a primary public access channel for all state agencies to make their electronic information available to the public.

VIPNET will follow the public/private partnership model established for Nebraska, Kansas, Georgia, and Indiana. In those states, William "Brad" Bradley has assisted state governments to establish public/private arrangements in which commercially valuable data generated by the states is sold by subscription. Revenues from sales support the network itself. User charges are limited to cost recovery sufficient to defray the costs of the network. In Virginia, the Department of Motor Vehicles is already selling its data and supporting its network in this fashion.

Websites Are Not Official Communications. Participants in the focus groups stated that, in Virginia, the paper version is the official copy. They view websites, first of all, as mostly containing copies of official documents published elsewhere in paper form. Beyond that, they view websites as living, changing entities. The interviewees also noted that the Internet is non-secure and open to hacking, so that documents appearing on agency websites might be changed in an unauthorized manner.

At the same time, discussion revealed that some significant original materials are appearing on websites and/or being transmitted by e-mail. Examples cited were as follows:

- The Year 2000 website had original materials on it.
- LV personnel noted that, for *Virginia State Documents*, the official listing of state publications, the electronic version published on the website is the official copy; the printed copy, which is less complete and up to date, is unofficial.
- Reference was made to a document from the state Department of Education on fall enrollment, for which the website version was the *only* version the agency had.
- The Virginia State Board of Elections registers filings for all candidates for state, county, and local elected offices. The Board of Elections now permits electronic filings, which would be the record copies.
- Lobbyists, who must register with the Secretary of the Commonwealth, can file electronically; the electronic filing would be the record copy.
- Note also that, for the federal Medicare Assistance Service, states must file electronically with the federal government.

- Note also that there is no authority in Virginia for digital signatures.

Policy Guidance for Electronic Records Management Exists but the Extent of its Observance is Unknown. As noted above, LV issued in 1994 *Guidelines for Managing Electronic Records*. However, participants in the site visit said there is no consistent way of communicating about ERM in Virginia. Perhaps this latter statement reflects the overlap in authority between LV and CIM.

State Agencies Undecided Whether Website Materials are Official Records. LV records management personnel said they were undecided as to whether website materials can be official records. Some tendency exists to view website materials as intrinsically ephemeral. This is a matter of substantial staff discussion at the moment, and they are not yet sure just how the issue will be decided.

State Archives Do Not Accept Records in Electronic Form for Permanent Preservation. LV records management officials stated that the archives do not accept records in electronic form for permanent preservation. They argued that it is not cost-beneficial to do so. If one takes into account the costs of migrating electronic records from one new information technology to the next, as each comes along, the true costs of preserving electronic records are astronomical. In Virginia's view, NARA cannot handle its electronic records now, and the situation will continue to worsen in the future.

Virginia has made some progress in ERM policy and expects to make even more in the near future. The tasking of CIM to develop Internet policy and the advent of VIPNET herald major innovations in the near future with respect to state website management and policy development. At the same time, no systematic consideration of records management on websites has surfaced. State agencies are aware of the issues involved, but are not yet impelled to enunciate, let alone enforce, official policy.

NAGARA Conference

Project co-investigators were invited to attend the annual meeting of the National Archivists and Records Managers Association (NAGARA), July 16-19, 1997, in Sacramento, California. One of the co-investigators attended and delivered a presentation on the NHPRC research project. He also used the opportunity to conduct a focus group drawn from state archivists/records managers, assisted by another member of the study team, and to collect data by means of a questionnaire.

Findings From NAGARA Conference

Findings from Questionnaires Administered. The questionnaire used at NAGARA can be found in Appendix C. Thirteen questionnaires were returned by participants. States represented were Alabama, California, Kentucky, Maine, Michigan, Minnesota, Pennsylvania, South Carolina, Texas (3 respondents), Utah, and Wisconsin. Nine respondents were from a state archives/records management agency, two from city governments, one from a county government, and one from a private nonprofit organization. Except for the last, all worked in the agency responsible for ERM policy development. The job experience of state employees ranged from one to 18 years, the average being just over eight years. City and county employees each had eleven or more years on the job, while the respondent from the private, nonprofit organization had less than a year's experience. Four said they worked in the records management field; three said they worked in archives; four said records management/archives, and one described him- or herself as a being combined records manager and webmaster. The great majority (nine) said their interest in government agency websites arose from their involvement as records managers/archivists; three cited Web policy as the origin of their interest; one mentioned website design; and one was an implementer of a website.

The questionnaire presented ten True/False statements, tabulation of which is shown in Table 3.5. The results show that half of the state governments of these twelve respondents (one did not respond to any items in this section) now have a policy developed to cover ERM (Item 13), whereas more than four-fifths report their state is now developing such a policy (Item 14), 42 percent say that their states have an e-mail policy that includes records aspects (Item 8), and 58 percent say their states have taken steps to preserve electronic records (Item 17). One suspects that these discrepancies arise from the fact many policies are still in process, with initial drafts having been completed. Four-fifths also say their state's agencies do not have provisions for determining the record status of net postings that are original materials (Item 11), yet two-thirds say their state agencies have policies on use of the Internet (Item 16). Yet almost three out of five report that in some cases the website version is more authoritative and up-to-date than the paper version (Item 12). Two-fifths say they assume that website postings that are only copies of published materials are accounted for in records systems kept elsewhere (Item 10). Very few said their agencies keep historical logs of website postings (Item 9). Finally, only one-fourth reported that their state governments either had or were developing records management policy for websites (Item 15).

What may be occurring here is that state agencies do in fact have Internet policies, and even perhaps ERM policies, but existing policies do not extend to coverage of website postings.

Table 3.5. NAGARA: Responses to Questionnaire True/False Statements (N = 12; 1 respondent answered none of these items)

Questionnaire Item	True	False	DK or NR*
8. My state government has an electronic mail policy that instructs employees regarding the official records aspects of e-mail.	42%	58%	0
9. Most agencies in my state keep an historical record or log of all agency website postings for purposes of accountability.	17	33	50
10. When website postings are only copies of materials published elsewhere by the agency, my state's agencies assume the record copy is kept elsewhere as part of agency publications procedures.	42	33	25
11. If the postings on the website are original materials, my state's agencies have provisions for determining their official record status and retention schedule.	17	83	0
12. In some cases, the website version of a state document is more authoritative and up-to-date than the published paper version.	58	8	33
13. My state government has no policy developed to cover ERM.	50	50	0
14. My state government is developing or now has a written policy covering electronic records management.	83	8	8
15. My state government is developing or now has a policy covering records management on state government websites.	25	58	17
16. My state's agencies have an Internet policy that instructs employees regarding the proper use of the Internet for official business.	67	25	8
17. My state government has taken steps to ensure the preservation of permanently valuable electronic records.	58	33	8

Table 3.6 shows how respondents replied to the six Agree/Disagree statements on the questionnaire. Respondents tended to be in strong agreement that websites are an increasingly important vehicle for communicating agency missions and programs. Opinions were diverse, however, on whether an ERM policy must be formulated before a website policy is put in place. They tended to disagree with the view that website materials are ephemeral and that records considerations are negligible, and strongly disagreed that states already have adequate guidance on website policy. They were spread across the entire spectrum of opinion on the issues of whether multimedia hypertext postings are official records and whether websites should become repositories of all state government publications. The overall impression from these six items is that state government officials believe the rise of the intranet and Internet constitute important developments for archivists and records managers, but that their policy-making apparatuses have not yet caught up with the developments.

Table 3.6. NAGARA: Responses to Questionnaire Agree/Disagree Statements (N = 13)

Questionnaire Item	Strongly Agree 1	2	3	4	Strongly Disagree 5	Don't Know
18. State government websites are an increasingly important vehicle for communicating agency missions and programs.	69%	23%	0	8%	0	0
19. Before a state website policy, a state first needs a policy on ERM.	8	23	38	23	0	8
20. Materials posted on state agency we sites are essentially copies or ephemeral matter, and official records considerations are therefore negligible.	0	23	23	15	23	15
21. State agencies already have adequate guidance on the policy aspects of their websites.	0	0	8	38	46	8
22. Multimedia hypertext records can constitute official records in my state.	38	15	8	0	15	23
23. State agency websites should eventually become repositories for all current state government publications.	15	23	15	23	0	15

Findings from Focus Group. Prior to the meeting, a NAGARA official had provided the study team with a list of members of the NAGARA electronic records committee. The study team sent an e-mail message to each member of the committee to solicit his or her participation in the focus group. Hence, most of the participants in the focus group were committee members or persons suggested by the committee members, and hence were persons who had already thought about or done something about ERM. Ten persons participated in the focus group, representing Alabama, Kentucky (two persons), Pennsylvania, New York, Wisconsin, Maine, Minnesota, Texas (city of Dallas), and Michigan.

The major issues that arose during the NAGARA focus group, each of which is discussed in detail below, are as follows:

- ERM policies and practices vary widely from state to state.
- The degree to which material appearing on state websites is considered to be original is interpreted differently by each state.
- Little consensus exists among states concerning liability and reliability of website records.
- Little communication occurS between records managers and webmasters at the state level.
- There is concern about the degree to which records on state websites are created from a business requirement or a censorship requirement.

Electronic Records Management Policy and Practice. Each state represented in the focus group had a different perspective about ERM policy and practice.

- Under Maine's ERM policy, electronic records are official state records.
- In Wisconsin, electronic records are included within the definition of public records under the public record law. This law assigns responsibilities to officials and prescribes how to schedule electronic records. Not surprisingly, the statute does not touch on website records management.
- Michigan is studying a retention program for electronic records and is entering the policy development stage.
- Kentucky has emphasized that electronic records should be managed in the same way as print records, but state officials are not sure exactly what an electronic record is.
- Pennsylvania has taken a management approach. They are more interested in archives than in ERM.
- Minnesota has no strong records management practices, print or electronic. They are not as interested in ERM as they are in coordinating electronic records spending.
- In Texas, electronic records are defined in a system design as agencies go through a major business impact analysis.
- Alabama has gone to a functional analysis format. They identify electronic records in their digital image system policy, but have no written policy for electronic records.
- New York has dealt with ERM in its directives on information resources management.

Not surprisingly for such a newly emergent field, the stages of ERM policy development vary substantially from one state to the next. Most states are not yet beginning to think about, let alone practice, any type of website ERM. Organizations such as NAGARA provide forums in which the states can share ideas and practices among one another.

Originality of Information on State Websites. The focus group raised the question as to whether state agency website postings contained materials that were original (i.e., not copies of materials published elsewhere), not captured in other established recordkeeping systems, and of record quality. States exhibited opposing views about this question. In Michigan, the State Administration Board is putting official minutes of meetings up on a website, knowing that no print version of the minutes exists. At present, these minutes are not being archived or managed in any fashion. Although such "web only" records are being created by many states, the prevailing opinion is that most information on state websites is ephemeral in nature, or copies of publications issued elsewhere, and hence unimportant from a recordkeeping standpoint.

At the same time, participants in the focus group were split in their views about the importance of information on state websites. Some felt strongly that it is a mistake to say that materials on websites are not records. These individuals believed that, regardless of the information's definition, information that appears on state websites still must be managed. This lack of agreement about the type of information on state websites and the view that what does appear on state websites is ephemeral or unimportant was frequently echoed in other site visits conducted by the study team. Texas representatives said they were fighting the perception that network postings are not records and do not need management.

Is Communication Occurring? The focus group discussed the state of communications and coordination between state records managers/archivists and webmasters. Most believed little communications has taken place. Part of this lack of communication arises from the fact that in many states, there is no clear delineation as to who is responsible for what. In many states, the webmaster is often the technical person responsible for the state website server rather than a subject matter expert. The lack of communication and coordination often leads to loss of information. Management or preservation or the records and/or information presented on state websites that is considered to be of value by records managers and archivists may not be given a second thought by the person who is actually updating and deleting files associated with the state website.

In Wisconsin, a group of web administrators from various state agencies met to develop Internet standards. However, these standards pertain only to content. When records managers asked about records management standards, the web administrators just looked at them, stating: "Let's not complicate things." This example is typical of current communication and coordination among these officials at the state level. In Alabama, a webmasters group meets regularly, and records managers are welcome to attend these meetings.

Validity of Information on State Websites. An interesting point that arose spontaneously during the focus group discussions dealt with the degree to which postings on state websites are created from a business requirement or a "censorship" requirement. In a discussion about the reliability of information on state websites, some pointed out that content can easily be changed. A more serious problem, others believed, was that agencies put up postings that make them look good to the public and may falsely reflect their true business processes. This raised a serious concern about the trustworthiness of information on state websites. Who will be responsible for ensuring that the information contained on state websites is accurate and valid? Placing a disclaimer on records is useless if the information supplied by the agencies is erroneous to begin with.

Accountability. On the question of whether agencies would be called to account for materials on their websites, participants quickly pointed to the practice of posting disclaimers noting that the website copy is not an official copy. Sometimes, system technicians insisted on posting the disclaimer. A Kentucky participant believed that the disclaimer would not stand up if challenged in court.

In summary, the focus group of state government personnel echoed themes found elsewhere in this report:

- Yes, important records management issues are emerging rapidly in the website environment.
- No, the agencies do not have policies to deal with these issues.

Overall Findings of State Data Collection

The following list summarizes common themes that arose during the state site visits. These issues are discussed in detail below.

- Information on agency websites is only a "mirror image" of a print version of information that appears elsewhere.
- The states visited have thus far given little thought to the future of records on agency websites and the ERM task/issues associated with them.
- Multiple administrative models of website ERM emerged from the state site visits.
- The definitions of record, publication, official record, public record, and associated terms are blurred.
- The research project was "ahead of its time."

Mirror, Mirror on the Web

Most of the individuals interviewed during the state site visits believed that information on state agencies' websites is a "mirror image" of a print version of information that appears elsewhere. This viewpoint removed from these individuals the necessity of having to manage the information on websites. These individuals were also convinced that there were not now and would never be records of a type that would be created only electronically, and for which there would not be a print "mirror" image.

Many of the individuals were also unsympathetic to the possibility of a record being changed when converted to HTML, even when the study team pointed out the degree to which a document can change when converted, not to mention the new essence a document takes on when hyperlinks are added. In response to study team suggestions, state employees took the position that websites do not contain official records, and therefore do not require records management techniques. Many state employees also envisioned agency websites as merely a means of convenience for dissemination and access to selected information (not records) that agencies choose to make available.

The notion of agency websites as "mirrors" or "copies" of the "official" item (housed elsewhere) was troubling to the study team. It was clear to the study team and others that information exists on agency websites that is of a unique nature, that is not captured in existing recordkeeping systems, and that, therefore, may require certain standardized records management techniques (e.g., retention schedule, documentation of when a record comes on or goes from a website, version control, authenticity, etc.).

Need for New Vision

Not only did the states studied see their websites as "mirrors" of print records, but they did not recognize the inevitability of evolving technology and the types of records that may with these new technologies. At present the dynamic nature of a website and Web-based records is unlike

anything in the world of print records. In the print world, a record is unchanging. In an electronic environment a record is dynamic. In the Web world, records can change through interactivity and can be a much fuller expression than merely text on a page (e.g., multimedia, hypertext, etc.). This interactivity between the record and its users distinguishes a Web-based record from other types of records. In addition, Web records adapt, evolve, and "learn" (e.g., cookies that teach the web record about the user and then modify the record through this knowledge).

Unfortunately, at the time of data collection for this study, the states visited lacked a vision concerning these possibilities. Many of the individuals interviewed during the site visits were leery about the very concept that such records exist. They were either unaware of current trends in emerging web technologies or so overburdened with management of print and ERM that they failed to see agency websites as a locus for records that require their attention. With this lack of scope and vision for the future, the potential for serious problems to arise when these records become commonplace is great. If state records management policies do not look toward tomorrow, the potential for a loss of critical information will inevitably affect the states.

The study team noted considerable confusion at the state level as to what is a records management issue or task, what is an ERM issue or task, and what is a state website records management issues or task. Traditional records management terminology conjures up too much of old ways of doing business, and that impedes the ability of individuals to think about a new type of record that is "interactive, multimedia, hyperlinked, and learns on its own."

The study team's experience in Virginia and at the NAGARA conference suggested that a new vision of website records management may emerge from greater communications between records managers and webmasters. If vision is lacking at the moment, the reason may be that websites are still at a very early stage of integration into agency business processes. Whereas state officials would state that, in principle, no official records were appearing on websites, they would frequently concede, when presented with case-study anecdotes, that in practice records were occurring on agency websites.

Models of Administration. Several models of administration for the development of statewide website ERM emerged from the site visits:

- Connecticut's interagency working group model.
- New York State Archives and Record Administration's service perspective through a business process reengineering approach.
- New York's Center for Technology in Government as a model of a legislatively funded organization that is helping agencies to be more productive in the use of technology, that includes a records management component.
- Virginia's VIPNET that will provide public access on a pay-as-you-go basis and, in the process, accomplish statewide coordination of agency websites.

Each of these models is innovative and creative in approaching statewide website ERM. SARA's service perspective is coupled with a business process reengineering approach. The basic model is to help an agency do BPR of core business activities and to include a records management component as part of that process.

Although CTG is a legislatively funded organization, its perspective is identical to SARA's. CTG also subscribes to the BPR approach to records management. In fact, CTG and SARA are affiliated and working together on projects in the state of New York.

Connecticut's interagency working group model is a unique expression of state government components working together to solve a problem. The existence of the interagency SHPAC is a model for how agencies and branches across state government could manage website and electronic records. This model potentially can be useful, because the implications for resolving website ERM at the state level is multifaceted.

Virginia is embarking on an experiment that, for Virginia, is a new departure, namely, the VIPNET enterprise to provide a one-stop-shopping website for access to all states agencies' information and to pay for the service through charges levied on users in the public. Here the focus is on the information dissemination stage of the information life cycle. Whether the movement toward coordination implied in the VIPNET concept will lead to increased awareness of ERM issues on state websites remains to be seen.

One aspect that all these models take into consideration is the concept of building partnerships. Building partnerships among records manager and agencies is essential. Such partnerships will occur in the context of a service perspective from archivists and records managers, not by a regulatory enforcement perspective.

Need For Definitions. Part of the problem impeding the vision of website ERM is the lack of clear definitions. Confusion reigns over basic terms such as record, publication, document, official record, public record, original record of source, and the like. Each state seemed to have its own spin on what these terms mean. Connecticut defines a public record in three different contexts: FOIA, disposition, and destruction. Even though most state statutes broadly define what constitutes a public record, it is not always clear to state employees and officials what these different types of records are. Interpretation of record status often depends on the situation, use of the record, purpose of the record, and the conditions under which the record was created.

Without clear definitions of these terms, their efficient and effective management on a website is virtually impossible. This issue will become even more enigmatic and complex when records of a multimedia type become commonplace.

Research Ahead of its Time? In research of this genre, it is common for a study team to seek out officials in a number of public agencies and ask them to recount their experiences in coping with a set of issues. Researchers learn that the idiosyncracies of various agencies' missions lend a

certain uniqueness to the manner in which each agency approaches an issues. At the same time, researchers learn to recognize certain similarities in how agencies in diverse circumstances have solved what are essentially the same problems.

In the present case, having conceptualized the research design and reviewed relevant literature, the study team approached state agencies to initiate queries about the set of issues identified. The study team received something of a shock. They discovered that, by and large, state agency personnel had not yet encountered the issues. Or, if the issues had been encountered, agency personnel had not yet thought them through. Hence, the answers to queries frequently appeared formulaic and even defensive.

This situation does not necessarily indicate that state officials are unenlightened. It may simply mean that the research queries were posed at a point in time that preceded accumulation of experience in state agencies. State agencies may have been in stages preliminary to development of policies and procedures on website ERM, stages at which new practices are being introduced and questions are arising for the first time in widely separated organizational settings. Only at slightly later stages would personnel begin to consult colleagues in other offices and agencies to discover that a similarity of experience was widespread and that state government, as a whole, might benefit from pooling the lessons of experience.

One last factor should be mentioned to put the overall findings from states in perspectives. The research project did not include data collection from state colleges and universities, which are in some sense agencies of state governments. Virtually everyone would agree that in terms of innovativeness and sophistication, the higher education community throughout the nation has been forerunner and leader in website development and application. Had state higher education institutions been included--and their exclusion appeared well warranted--the overall picture for states might have been much different.

CHAPTER 4
WEBSITE RECORDS MANAGEMENT IN FEDERAL AGENCIES

Introduction

The design for the research project called for data collection first at the state level, and subsequently at the federal level. By July 1997, the investigators had completed all data collection and site visits associated with states and concluded that phase of the study. One result of this design was that the federal agency data collection activities benefitted from experience gained in the states. By the time the study team finished state data collection, they had already gained hunches and inchoate hypotheses about developing website ERM guidelines that could be applied to federal agencies.

Certain anomalies had surfaced in this research project aiming to deal with both state and federal agency practices. At the state level, the study team focused on a statewide level, looking across the several branches of government and many agencies within each state. In contrast, at the federal level, the study team's approach was necessarily at the agency level only, and then only within the executive branch of the federal government. In such circumstances, the unit of study becomes blurred. As the research progressed, the investigators realized the unlikeliness of being able to develop highly prescriptive guidelines applicable both to the many unique situations prevailing in states and to federal agencies.

The realization grew, therefore, that the most useful guidelines the research project could develop were those dealing with *processes* all agencies might go through to arrive at sensible website ERM. By identifying and describing key processes, the study team might hope to get both state and federal agencies thinking about managing records on their websites and what the issues surrounding website ERM might be.

At the federal level, the study team benefitted from the pre-existence of organized groups concerned with topics harmonious with the project's objectives, as described in the section on Methodology below. The study team also undertook some research activities that fell outside the scope of the NHPRC grant.[2] On September 17, 1997, the principal investigators were afforded the opportunity to meet with a group of senior staff from NARA to discuss issues in website ERM, a discussion that helped clarify conceptualization of the research. On November 22-23, one of the co-investigators met with officials from the Canadian government to discuss the research, and the results of that visit are described in this chapter.

---

[2]Neither the meeting at NARA nor the discussions with Canadian officials were financed with funds from the NHPRC grant.

Methodology for Selection of Federal Agencies

Federal agencies in the Washington, DC, area exist in an unique environment. Agencies have their unique mission legislation. The enabling laws for the Department of Agriculture, for example, are radically different from those of the Department of Justice or the National Aeronautics and Space Administration. Each agency has a set of legal provisions, plus an administrative history and tradition, that give the agency its identifying character and define its special contribution to the public good.

On the other hand, because they are federal agencies, they share many aspects of organizational structure and behavior. The agencies are bound together within a legal and regulatory framework defined by the Administrative Procedure Act, the Government in the Sunshine Act, the Federal Advisory Committee Act, the Privacy Act and the Freedom of Information Act. They are also governed by Title 44, United States Code, which contains common provisions concerning federal printing, federal records, and the management of federal information resources that apply to all agencies. The Paperwork Reduction Act and OMB Circular No. 1-130, for example, pertain to Title 44.

Within government circles, records management is considered a "central management agency" function. That is, authority over records management occurs at NARA and, to a lesser extent, other agencies such as the Office of Management and Budget (e.g., overall information policy oversight) and the National Institute for Standards and Technology (e.g., Federal Information Processing Standards). The missions of these agencies all fall within the central management of the federal government.

The commonality of records management as a central management function shows itself also in a substantial amount of information and experience sharing among agencies. Laws and regulations strongly encourage agencies to share information and insights about common problems. The habit of information sharing is sufficiently strong that, when presented with a new issue such as electronic records management or website records management, agency officials routinely say to themselves and their staffs: What are other agencies doing?

The information sharing habit shows itself also in the huge number of interagency committees and working groups covering every conceivable subject. NARA has its annual Records Administration Conference to which records officers from all federal agencies come in order to learn the latest developments in the field. Dr. Sprehe was a speaker at the May 1997 conference, invited to address several hundred records officers concerning the NHPRC project.

Beyond these larger events, agency officials interested in electronic records management have formed the Electronic Records Management Working Group, a group that originally grew out of the National Performance Review and is currently seeking an official status with the Government Information Technology Services Board established by the Clinger-Cohen Act. One of the principal co-investigators addressed this group on March 27, 1997.

From the webmasters side, two important groups have emerged. One is the World Wide Web Federal Consortium; the co-investigators appeared before this group on April 17, 1997, and used the opportunity both to make a presentation and to gather data for this project. Results from the data collection may be found in Appendix C to this report. The second group is the Federal Webmasters Forum and a principal co-investigator was their featured speaker on May 19, 1997, at which time he also gathered questionnaire data.

The upshot of this intense interaction is that, when it comes to choosing agencies for site visits under this project, one is not dealing with a set of organizations operating independently of one another. With respect to electronic records management and website records management, federal agencies form a cohesive and active community of organizations. Their personnel talk to one another constantly; they meet regularly; and they keep up with what one another are doing. It is possible, for example, to get a fairly accurate picture of which agencies are actively pursuing website records management by telephoning half a dozen people; and if the people are well chosen, the messages will quickly become repetitive. Moreover, it is likely as well that agencies reporting themselves as inactive in website records management at the moment will say they are awaiting the outcome of this or that pilot program in another agency before committing themselves in this field.

In sum, the selection process for agencies as site visit candidates comes down to interviewing selected federal personnel and weighing their advice as to which agencies are best to target. The personnel chosen for interviewing in this selection process were the current Chair of the Federal Webmasters Consortium, Director of Records Management Programs at NARA, the person who was Director of Records Management and Information Policy at the Office of Thrift Supervision in the Department of Treasury and also recent co-chair of the Electronic Records Mangement Working Group. Not surprisingly, these persons were also members of the Advisory Committee for the research project.

Department of Treasury Site Visit

On September 18, 1997 the investigators met with 16 representatives from the Department of the Treasury to discuss topics related to ERM of government websites. The visit had the following objectives:

- Identify key issues affecting ERM of websites and determine the degree to which these issues are those found in other data collection activities
- Discuss possible solutions and procedures to improve ERM of websites and incorporate into the draft guidelines being developed by the investigators
- Obtain specific examples and experiences from participants of activities and problems related to ERM of websites

An official at Treasury had organized the visit into four sessions of an hour each with various bureaus and units within the department. Prior to the visit, the investigators provided attendees with a menu of topics and issues that would be discussed (see Appendix A).

All participants completed a questionnaire that asked for (1) some background information and (2) an assessment of the importance of selected issues related to ERM of websites (see Appendix B). Generally, participants had a significant amount of experience working for the government. They also filled out a participation form rating the importance of some key issues to the successful management of electronic records on a scale from one to five with one being "very important." The means of their ratings are presented in Table 4.1.

The participation forms also asked individuals to indicate how long they had been working in the area of records management and in ERM. The average number of years the individuals with whom the study met ranged from 5.1 in records management to 3.9 in of ERM.

Findings from Site Visit with Department of Treasury

The investigators introduced a number of topics at each of the four sessions, but the participants directed much of the conversation and debate. Indeed, the discussions were wide ranging and provided a wealth of views regarding ERM in general and ERM of websites in particular. The investigators were especially pleased with the level of involvement and interest given to topics related to website ERM by the participants. The most useful and interesting views and issues that resulted from the four group interviews are summarized below:

Table 4.1. Rating of ERM Issues by Treasury Department

ERM Issues	Mean Rating
Authenticity	1.1
Accountability	1.2
Security	1.3
Privacy	1.3
Training/Education	1.7
User Evaluation	1.8
Responsibility	1.2
Preservation	1.6
Liability	1.6
Feasibility/Cost	1.8

- Official records on websites
- Paper versus electronic version of the record
- Backup copies of the website
- Range of key players
- Control of record access and content
- Two different Web-based ERM processes
- Use of disclaimers
- Privacy issues
- Best practices from the private sector
- Management of electronic records as "publications
- Liability context
- Federal ERM policy context

Official Records on Websites. Participants readily agreed that there were "official government records" on their agency websites. They pointed to examples of specific documents, laws, regulations, and other information that, in their view, constituted records. In addition, they noted that records are also on their websites that:

- Appeared on the website before they could be distributed in print
- Were more current, or had been updated sooner, than print counterparts
- Had no print counterpart, but were in electronic format on the web only

Indeed, often there was an informal view that the information should "get up on the website" as soon as possible, since that would be the quickest means to "get the information out to the public."

The participants also generally agreed that there would be increasingly more records on the website for which there were no print counterparts. A range of "transactional" records already are appearing on websites. These include interactive communications and automatically generated "records" in response to a request or as a result of conducting electronic commerce. One person commented that the lack of knowledge about how to do ERM was a factor limiting government electronic commerce, since agencies might be hesitant to engage in electronic commerce without clear ERM guidelines and procedures in place.

Question arose as to a precise definition of what constitutes a record, and when something on the web is to be considered as a "record" versus a "nonrecord," and that the term "official record" may not be useful. One person commented that in the absence of clear guidance from OMB or NARA, "we'd better figure it out for ourselves and agree department-wide."

Paper versus Electronic Version of the Record. Considerable discussion centered about whether "records" on the website must be managed as part of a records management system if the same record was available in a print version. Some believed that the print version would be considered as the "official version," and thus ERM of the web version was not necessary. Others disagreed with this view, noting that often records never appeared in a print format; they were created in electronic format and went directly to a website in that electronic format. Thus, the GRS-20 approach that permitted printing out copies of electronic records and then entering them into a records management system was likely to be (or become) simply unworkable.

Backup Copies of the Website. A number of participants noted that they regularly made backup copies of the agency website. Some said this was done "every two days," others said "weekly," and others said it was done as time was available to do so. The justification for backup copies was to have "some type of record" of what was on the website "in case" such information was needed. It was unclear how long these backups were being saved.

Further probing on this topic disclosed that since the websites change constantly--even within a given day--it was impossible to have an authentic copy of the website for a particular day and time. Participants believed it was unreasonable to try to have such copies; nonetheless, they were making an attempt to save some historical record of the website over time and to preserve that record. The investigators asked how long they would keep such copies; the general response was that they did not know, and they were not aware of any governmentwide or departmental guidance on this topic.

Range of Key Players. Throughout the ERM of a website a number of positions and individuals affect how ERM can be accomplished. At a minimum, these include the records managers, webmasters, and content providers. Confounding the development of procedures for website ERM is the fact that each of these positions (and maybe others, depending on the agency)

have different responsibilities, roles, and reporting requirements. Moreover, these three players often do not communicate effectively with one another regarding website ERM.

Participants tended to agree that the content provider or the originator of a record had a number of responsibilities for ERM--just as that person would have responsibilities for records management of a print document. Unfortunately, it was not clear (although some ideas were suggested) what the specific responsibilities are, the process by which they should be integrated with the records manager and the webmaster, and the means by which to ensure that the procedures would be followed.

Controlling Record Access and Content. Webmasters acknowledged that some guidelines were in place to determine what was appropriate for posting on the website, although in some instances these were informal. A number of guidelines were technical (i.e., format and style of the record). Other guidelines included determining authority and authenticity of the proposed web record. In one bureau, only "approved" individuals could submit a record to be posted to the web, thus allowing the webmaster to maintain some control over who could or could not submit a possible item for posting on the web.

Participants agreed that guidelines should be developed in this process of submitting items to be posted to the web that included ERM topics. For example, the content provider might need to document that the record had been "logged" in the agency's records management system, that it should remain on the web only for such-and-such a period of time, and that it was or should be scheduled for final disposition with other types of records.

Most also agreed that maintaining a log of which records were posted to the web, modifications that were made, and when postings were removed from the web would be useful for a range of reasons (including liability). There was no consensus either on how to do this or if there were staff and resources to make it happen.

Two Different Web-Based ERM Processes. In discussions about how best to maintain website ERM, it became clear that two different processes would have to be accommodated, with different procedures:

- ***Content Provider Based***. In this approach, a content provider would develop the record and work with the webmaster and the records manager to ensure appropriate ERM over the item to be posted on the web.
- ***Transaction Based***. In this situation, "records" could be generated either by users of the Web or automatically generated by the Web in response to a range of transactions or electronic commerce. In this instance participants believed that a process would need to be developed that "captured" the set of records within such a transaction as output. Then these files could be treated as "normal" record systems.

In the latter instance, it would be important to consider in advance the types of records that would result from such transactions and to develop procedures to capture them for ERM. Thus, four key players could be involved in the management of electronic records: content providers, records managers, webmasters, and users of the website.

Use of Disclaimers. There was much discussion about the use and appropriateness of disclaimers on government websites. Disclaimers advising users that the site could not guarantee the privacy of those accessing the site *might be* appropriate. And if the site collected information via cookies about users, this should also be carefully noted on the homepage. But disclaimers that warned users that the information on the site might be inaccurate, out-of-date, or otherwise not authentic seems to be a disconnect from the idea of trying to encourage users to engage in electronic commerce and otherwise feel confident that the information on the website was accurate and timely.

One person commented that the assumption should be that if the information and specific records are on a government website, then the information is high quality, accurate, credible, authentic, etc. She asked "Why have a website that provides inaccurate information anyway?" She noted that in her bureau, anyone wanting to post information or records on the web had to authenticate or otherwise demonstrate the accuracy and appropriateness of the information to be posted *before* it would be posted. She thought such a certification process would be appropriate in any ERM guidelines for websites.

Privacy Issues. One individual commented that his or her bureau had received a request asking for a list of all people who had used a particular service on that web or had accessed a particular resource. They had received conflicting legal advice as to whether or not they were legally required to divulge that list of users. If in fact they had to make that list available, then, she thought, a notice to that effect should be posted on the webpage so that users knew that, potentially, others could obtain lists of who had contacted that particular page or service. This and other such issues still need resolution and guidance.

Best Practices from the Private Sector. A number of individuals asked the investigators if they had contacted organizations in the private sector regarding their procedures for ERM of websites. The individuals noted that companies such as FedEx had a range of transactional data on their website in order that customers can track their shipments. The question was, "What are their procedures and guidelines?" Another commented that while it certainly would be interesting to know, it was unlikely that they would divulge the information since it likely would be considered to be "private" and competitive.

Managing Electronic Records as "Publications." One person commented that she controlled ERM procedures by treating all postings as if they were in the bureau's publications process. In 90 percent of the cases, she went to individual units requesting postings that needed to be made available--only some of which would be made available via the website. In most instances, these were "customer-based" requests. In this case the most familiar pattern was reversed: instead

of content providers taking postings to the webmaster, the webmaster was soliciting postings from the content provider.

The key to success here is that every posting has a control number or it cannot be "published," regardless of the format in which it will be published. To receive the control number, a series of procedures and certifications must occur in the bureau's "Style Guidelines." No control number or no certification, then no publication. As part of the certification, a number of specific guidelines related to ERM must be followed.

The Liability Context. At one of the sessions, an attorney from the department's General Counsel staff participated in the discussion. He indicated that all information leaving headquarters for posting on the website received, as *pro forma*, a legal review. The primary purpose of the review was to ensure that there was nothing in that information that could result in legal liability for the department. None of the other bureaus reported a process in place that reviewed records being put on the Web for legal liability.

This discussion evolved into a range of potential situations wherein a government agency might have liability for inaccurate information on the website, when the Web version of the information was not updated in a timely fashion, for providing links to other URLs that were inaccurate, etc. The sense of this conversation was that there are simply too many unknowns about agency liability for information on websites.

A general consensus pervaded the discussions that contentious issues related to ERM of websites would not be resolved until they were considered in a court of law. Indeed, some participants thought that some agencies would give inadequate attention to website ERM *until* there were court cases and agencies found to be liable.

Federal ERM Policy Context. Some participants did not understand why there had been limited policy guidance on ERM in general and website ERM in particular. While some were aware of drafts being developed by individual agencies, the 1996 draft statement by NARA, and preliminary discussion from OMB/OIRA, most believed that more and better governmentwide direction should be forthcoming rather than each agency or department having to deal with the issues separately.

One of the investigators identified some government-wide groups that were trying to deal with these issues (Federal Webmasters Forum and World Wide Web Federal Consortium) and suggested that members at these meetings may want to get involved in these groups. Others suggested that there may be a need for some type of department-wide effort to consider possible policy options in this area.

Site Visit to the Internal Revenue Service

The site visit to the Treasury Department yielded a broad picture of how the department as a whole is coping with ERM issues. Various statements made by a representative from the Internal Revenue Service (IRS) prompted the investigators to schedule a special site visit to IRS. The site visit occurred on October 24, 1997.

Within the Treasury Department, the IRS operates the *IRS Digital Daily* [<http://www.irs.gov>], the agency's website and one that has won numerous industry awards for outstanding website. The website is administered by the Electronic Information Services (EIS) division, which falls under IRS' Printing, Publishing and Distribution Services, and not under either the agency's Chief Information Officer or an IRM office. EIS splits its functions principally into two parts: dealings with external customers and dealings with internal customers. The external customers are the general public and the many companies and organizations that seek IRS information. The internal customers are the various IRS program offices that create information products disseminated by EIS. The EIS mission is "to reduce taxpayer and tax practitioner burden and to make effective use of limited resources." In practice, this means brokering IRS information products so that the public gets the products it needs in the cheapest and fastest ways possible.

Within the IRS context, to ask EIS how it determines the contents of its website is to ask the wrong question. EIS focuses its attention on a very large set of textual databases housed on a mainframe computer that contains the IRS core business information (Core; the investigators coined the term, not IRS.). The Core consists of all the information products IRS provides to the public. It includes IRS forms, IRS publications, responses to FOIA requests, and many other kinds of information. All products that go into the Core have been cleared for release to the public. They are all GILS compliant. Records management requirements for each product have been completed before a product enters the Core. Hence, according to EIS, website ERM is not an issue, because all web postings come from the Core. And the "right" question is to ask how IRS determines what goes into the Core.

Virtually half of EIS staff time is spent in consulting visits to program offices to work with program staff to identify the information products the offices create that should go into the Core. Assuming clearance for release to the public, the first criterion applied to a candidate product is whether the product experiences high public demand. EIS staff exercise authoritative judgment at this point, refusing to put into the Core (and hence onto the website) any products that will experience low public demand. (An example of material turned down are office organization charts. The offices may want the charts posted on the IRS website, but the public has very little interest in such documents.)

The other half of EIS staff time is spent in interacting with the user public through many avenues and satisfying the users' information demands. EIS staff attend conventions and conferences to talk with users, and they maintain voluminous e-mail and telephone communications with individual, corporate, and institutional users. The IRS public is highly sophisticated. Tax return

preparers will know, for example, that the IRS has an internal manual on a particular technical tax subject; they will press IRS to make the internal manual publicly available to specialists in the public. EIS will contact the program office in question and request the external release of the internal document.

If the first concern of EIS is the growth and development of the Core, the second concern is delivering information products from the Core to the requesting public in the most efficient and cost effective manner. EIS insists on quantitative metrics at every step and tracks detailed statistics on what it costs to satisfy users' requests via:

- Internet/computer
- CD-ROM
- Kiosk
- Fax-on-demand
- Dial-in telephone
- Print

User services include tax forms and publications, answering taxpayer questions using e-mail, digital dispatch, tax tips calendars, and tax tables and rate schedules.

Essentially, while always receptive to educated advice, EIS asks program offices to supply the information products that go into the Core. EIS uses its own experience and its interaction with customers to determine the fastest and least costly delivery vehicle to the user. For example, EIS experience demonstrates the results shown in Tables 4.2 and 4.3. Table 4.2 shows customers served for every $1,000 investment for the various delivery vehicles. The moral of Table 4.1 is that investments in websites have the greatest pay-off in customer service.

Table 4.2. IRS: Number of Customers Served per $1,000 Invested

Delivery Vehicle	Customers Served
Internet/computer	X,000,000 millions
Fax-on-demand	X00,000 hundreds of thousands
CD-ROM	X0,000 high tens of thousands
Telephone	X0,000 low tens of thousands
Kiosks	X,000 thousands

To put the matter another way, Table 4.3 shows costs per customer served.

Table 4.3. IRS: Cost per Customer Served by Delivery Vehicle

Delivery Vehicle	Cost (approximate)
Mail	$10 and up
Kiosks	↓
Walk-in	$5
Dial-in Telephone	↓
CD-ROM	$2
Fax-on-demand	↓
Internet/computer	Pennies

While delivery of information products via the Internet is clearly the most cost effective, IRS does not conclude that investments in more expensive delivery vehicles such as mail and kiosks should be discontinued. Many members of the public do not have computers or easy access to fax machines, a situation that will continue indefinitely. IRS recognizes that different delivery vehicles serve different portions of the public, and therefore, is likely to continue using all delivery vehicles for the foreseeable future.

The governing rule for EIS is to get the customer the Core information products the customers wants in the format that is most convenient for the customer, in the manner that gives the fastest delivery, and in a way that costs IRS the least. Hence, the Internet website is only one delivery vehicle, albeit the cheapest, through which EIS serves its customers. Program offices that prepare the information products are not always the best judges of delivery vehicles.

Conclusions

The visit to Treasury Department provided a range of useful information and ideas. Some general conclusions from the visit include the following:

- **Complexity of the issues.** A number of participants commented that until engaging in these discussions, they had no idea how complicated, ambiguous, and otherwise difficult ERM of websites could be and the range of issues that must be identified and resolved.
- **Importance of coordinating people, procedures and guidelines.** It became clear to everyone that there are multiple positions and individuals who deal with ERM of websites. For any set of guidelines to work, they must be carefully coordinated across (1) individuals in the same bureau, and (2) positions across other bureaus and agencies in the department.
- **Need for ERM procedures and guidelines.** Participants recognized the need for guidelines for website ERM and recognized that currently they were "in the dark." One person commented, "Just tell me what the procedures and guidelines are and I will follow them . . . but we just don't know what to do."
- **Tighter controls and certification procedures.** The notion that there will need to be tighter controls over who can submit materials to be posted on the website received much agreement. Participants also generally agreed that at least in terms of liability, a formal process of certification to insure that certain ERM guidelines were met for websites was necessary.
- **Emergence of a management model for websites.** The additional site visit to IRS produced the beginnings of a management model that may have wider applicability. The attraction of the IRS model, to the extent that the model is truly realized, is that it places website management and website ERM within the larger context of a system for managing access to and dissemination of agency information. Records management becomes one of a series of antecedent processes that information products go through before being certified as publicly releasable; other processes in the series are checks for legal liability, public affairs suitability, and "FOIAbility." Also, dissemination over the Internet via the agency's website becomes only one mode in a system of dissemination modes. The agency is able to rank the various modes according to their economic efficiency and their effectiveness in providing customers the speediest and most convenient service, two primary goals for any government information dissemination program.

The overall sense gained from the Treasury Department site visit was the recognition that ERM guidelines in general and website ERM guidelines in particular were essential, and that significant work must be done soon to produce such guidelines.

Department of Health and Human Services Site Visit

On September 23, 1997, the investigators met with six individuals from the Department of Health and Human Services (HHS). Four persons from the Office of Information Resources Management (OIRM), Office of the Secretary (OS) were in attendance with specialties in records management, website management, GILS and Internet oversight. The webmasters from the Food and Drug Administration (FDA) and the Office of the Assistant Secretary for Planning and Evaluation (ASPE) were also present. At the beginning of the visit, the investigators explained the nature and purpose of the research project. The visit had the following objectives:

- Identify key issues affecting ERM of websites and determine the degree to which these issues are those found in other data collection activities
- Discuss possible procedures and draft guidelines the investigators were formulating to improve website ERM
- Obtain specific examples and experiences from participants of activities and problems related to ERM of websites

The group reported that HHS currently has 68 websites by actual count.

HHS has undergone significant reorganization recently, spurred in part by the fact that the Social Security Administration was split off as a separate agency and in part by the abolition of the Office of Assistant Secretary for Health. The department is organized into Operating Divisions (OPDIVs), and in recent years the OPDIVs have gained increasing autonomy, whereas previously HHS exercised more central departmental control from OS. For example, all records schedules in HHS are allocated by OPDIVs without OS control and, as yet, OS itself has no approved records schedules of its own.

Findings from HHS Site Visit

Records Schedules for Websites. Recently, OS has submitted an SF-115 to NARA requesting records disposition authority for the initial, top-level HHS home page. HHS proposes permanent retention of a copy of this page in machine-readable form for each calendar year. The SF-115 also requests that original materials be retained according to the current records disposition under which they fall. User access logs and paper records loaded as webpages would be destroyed when no longer needed.

The contents of HHS' SF-115 for website records scheduling are not especially revolutionary. They are mentioned here because this was the first and only instance the investigators encountered in which any agency had formally requested records disposition authority for website records. HHS noted again that HHS records schedules exist only at the OPDIV level, and, until now, OS itself has had no records schedules.

Web Postings as Records. The investigator began the general discussion by postulating that federal records were indeed being created on agency websites. HHS personnel immediately voiced strong agreement. Moreover, they offered anecdotes of complex records created that were difficult to handle.

- FDA held a public hearing, carried over the Internet, which FDA definitely considered record material. At the hearing, several industry speakers showed color slides. FDA could not obtain copies of the color slides, because the companies in question considered them proprietary. Federal records in FDA are normally reduced to paper for saving, but FDA believed it had no way of economically reproducing the record copies of the color slides from the Internet records. So the federal record kept for this hearing would lack the color slides.
- ASPE also held a public hearing carried over the Internet (using technology loaned for the occasion by the Department of Veterans Affairs). The proceedings can be accessed on the ASPE website by going to a particular screen and clicking on a button, at which point the user hears an audio recording of the hearing. ASPE has made no transcription of the audio recording and has no funds with which to do so. The audio recording is currently the only record of the hearing.

The HHS participants tended to consider these kinds of events as questions of economics and technology; that is, in the current state of technology HHS believes it should not incur the expense of reproducing its own copies of the color slides and the audio transcription simply for purposes of recordkeeping.

Participants also cited the example of soliciting comments on Notices of Proposed Rule Making (NPRM) electronically and posting them on the agency website, a practice pioneered by the National Institute of Standards and Technology and also in use by others, such as the Environmental Protection Agency. They noted that HHS OPDIVs announce in the *Federal Register* notice for the NPRM that the OPDIV will screen all comments received and post only those they believe to be germane to the NPRM. They also will not post comments on comments previously made.

Control over Websites. OPDIVs vary widely on the kinds of controls they exercise over websites. In OS, the webmaster has delegated to four components the rights to create website content within agreed content boundaries and to post it themselves. In this case, the webmaster never sees the content until after it is posted. In ASPE, the webmaster operates more as a "managing editor." The volume of postings is such that, in most cases, he exercises control in a *post factum* manner. That is, within a day or two after posting, he reads the materials and sometimes make changes. He cited an example in which a contractor prepared materials for the OPDIV to post. When the webmaster inspected the posting he discovered the contractor had inserted a good deal of "self-advertising" in the form of multiple and gratuitous hyperlinks to the contractor's own website. The webmaster pulled the post, removed the hyperlinks and reposted the materials.

In contrast, FDA exercises close controls over its website. The OPDIV is highly sensitive to the fact that its public pronouncements, including its website, are closely watched by the press and

by industry attorneys. Consequently, all website materials must pass through a quality control unit and through general counsel's office before posting. FDA has also prepared and circulated within the OPDIV a set of web guidelines to advise employees on how to prepare website materials.

It is noteworthy that each of the three OPDIVs—OS, FDA, and ASPE—undertake archiving of their entire sites. OS and ASPE archive somewhat infrequently; in ASPE's case, it is done on a monthly and quarterly basis. FDA, on the other hand, has archived its website on an hourly basis since the day it began operations. Thus far, the OPDIVs are retaining the archived materials permanently.

The investigator introduced the idea that records managers, webmasters, and content creators need to communicate with one another and work out policies and procedures. Participants in the meeting unanimously agreed with this point.

Historical Logs . One investigator floated the proposition that it is important to keep a historical log of an agency's website postings for purposes of accountability. He showed a list of suggested data elements for a historical log. This drew a strong negative reaction from participants. FDA said that it would be entirely too onerous and expensive for them to keep a log like the one suggested; they particularly objected to the idea of exercising version control over postings. FDA said they would have to add another full time staff member just for the log, and they had no hope of getting the funds to do so. Moreover, their current practice of saving hourly snapshots of the website was far cheaper and accomplished more than the historical log called for. Just give FDA a date and time, and they can call up the entire website contents in each case. Similar reactions were heard from other participants.

The participants accepted the principle of accountability and said they were well aware of the need for a historical record and the possibility of being called to account for their websites in a court of law, in the media, or before Congress. Their preferred alternative to the historical log concept was: "Yes, we are responsible and accountable for what has been posted on our websites. But don't lay down procedures for us; let us work out the procedures for fulfilling the responsibilities."

Official Publications as Permanent Records. An investigator reported he had been told at NARA that all official agency publications were permanent records. HHS personnel disputed this point, saying that OPDIVs such as the National Institutes of Health, which had thousands of scientific publications, had NARA-approved records schedules permitting them to destroy records of publications when the publications became out of date. Others cited the example of "publications" created "on the fly." That is, in answer to a user query, an HHS analyst might lift paragraphs from half a dozen agency publications and stitch them together into a coherent answer to the query. HHS recognized they could exercise no control over future uses the user made of this kind of response, including publication. Was this an official HHS publication? If so, they foresaw a nightmarish situation. The matter was left as something that HHS needed to look into more carefully.

Change the Federal Records Act? Others shifted the discussion to an argument that the Federal Records Act (FRA) needed to be changed to embrace electronic publications, and in particular, to focus on principles governing what to do with the information rather than on its paper record. They believed that, on most of the questions raised during discussion, an agency would surely lose in a court case because of deficiencies in FRA.

Official Content Creators? The investigator cited the example of another agency in which the webmaster kept an official list of personnel from whom he would accept website postings; if someone was not on the list, the webmaster would not accept their materials for posting. FDA said they had such a list; others said yes also, but their practices were not as strict as FDA's. Elsewhere practices were more variable. In one OPDIV, the Public Affairs (PA) office has on-paper clearance authority, yet a recent survey had shown that less than half of the website postings had been cleared by PA. People tend to ignore the internal directive or are unaware of it. Some webmasters pointed out that the newer software, such as Front Page and Page Master, provide the capability to make everyone with a PC and an Internet connection to become his/her own content creator. These developments made control over content creation much harder to exercise.

Finally, the investigator asked if HHS had any policy as to whether OPDIV websites could hyperlink to commercial websites. The answer was that the topic was being hotly debated at the moment. Some OPDIVs permitted it; others strictly forbade the practice.

Conclusion

The HHS participants were a sophisticated group of records managers and webmasters. Clearly, at the OS level, the records officer and the webmaster speak to one another frequently (both being located in OIRM). In the OPDIVs present, the webmasters, while not professing knowledge of records management, were quite sensitive to records issues on their websites. They had thought about the issues a good bit and had solid experience to back up their opinions.

Department of Defense Site Visit

On October 6, 1997, the investigators visited the Defense Technical Information Center (DTIC), Ft. Belvoir, Virginia. DTIC is part of the Research and Engineering Directorate, Under Secretary for Acquisition and Technology, Department of Defense (DoD). In addition to its general mission to collect, house, and disseminate scientific and technical information (STI) to the defense community and general public, DTIC serves as the major website focus for DoD and especially the Office of the Secretary of Defense (OSD).

DTIC occupies a position of leadership in the federal STI community and in the federal webmaster community. On the STI side, DTIC was a founding member and continues as a leading participant in CENDI, the organization of federal STI agencies that meets regularly and sponsors various projects of joint interest and concern. On the webmaster side, DTIC wrote the original document that has since evolved into World Wide Web Homepage Guidelines and Best Practices

(World Wide Web Federal Consortium 1996). This document is recognized throughout the federal government as the basic handbook on how to set up and run an agency website.

DTIC performs website functions in two ways. First, DTIC runs STINET, which is the agency's own website for fulfilling its general mission in the scientific and technical information field. Second, the agency also provides a wide variety of consulting and other services to DoD components with websites. These services range from simply providing a website server to advising on all aspects of website design and implementation. In this second respect, DTIC personnel function very much as electronic publisher consultants, advising on screen design, content guidelines, best practices, and other topics, as well as the technical computer aspects of websites. DTIC also hosts sites for many DoD units and provides management services. Typically, DTIC signs a memorandum of agreement with each unit, tailored to the particular needs of the client. These services are offered on a reimbursable basis.

Findings from Site Visit

Electronic Records Management Standard. DTIC works closely with the Defense Information Systems Agency (DISA), which developed the technical standard for software applications that purport to carry out ERM functions. [Department of Defense, Design Criteria Standard for Records Management Application Functional Baseline Requirements, DoD-STD-5015.2, 1997. <http://www.dtic.mil/c3i/recmgmt.html>] The standard represents a fundamental advance for federal agencies in ERM policy. At the time of the site visit, according to the DISA representative, NARA had written to ask for the beginning of negotiations with a view to making an adaptation of the standard into government-wide policy (negotiations which culminated in an interagency agreement in December 1997). He also reported that initiatives within DoD were pushing to expand the standard into the areas of security, privacy, and FOIA.

The investigator reported on progress in the research project to date. He noted that a major predictor of whether an agency had considered or developed records management guidelines for websites was whether the agency had an ERM policy. DTIC responded that they have an operational ERM policy and provided a copy to the investigator.

Website Postings as Records. To the question of whether federal records were being created on agency websites, the group responded unanimously in the affirmative. They noted that the Air Force is alone in claiming that it has nothing on its websites but copies of documents already prepared on paper. The group moved on to say that the advent of multimedia situations within the Internet environment had created an entirely new situation that no one had ever encountered within the records management world.

Disclaimers on Websites. Regarding the use of disclaimers on websites, the group stated that their websites used some limited disclaimers. For example, one disclaimer stated that DoD was not responsible for the accuracy of any information contained in a hyperlinked site outside DoD. Also DFARS (Defense Federal Acquisition Regulations) presents a disclaimer stating that the official copy

is on paper; all DFARS are published in the *Federal Register*. The group noted other differences between the paper world and the network environment. As an example, the DoD Directives found on websites are in ASCII, so that any graphics are missing.

On the other hand, the participants in the site visit noted that the Deputy Secretary of Defense was spearheading a movement within OSD toward "electronic coordination." This means that documents circulating for clearance within DoD would be worked entirely in electronic form with no paper circulation. The cost savings to DoD in terms of paper and reproduction would be substantial. At the same, electronic coordination makes important the issue of digital signature standards.

Unclassified but Sensitive. Discussion briefly moved into the Internet/intranet arena and the investigator reported that NARA had advised that the research study avoid the intranet environment as being an area that raised many additional issues the project need not address. The DoD group noted the presence on the DoD intranet of many documents that were "unclassified but sensitive" (using the term unclassified in the context of classification for purposes of national security). This is a term that, on the one hand, appears in statutes such as the Computer Security Act, but on the other, has been incapable of definition. No one has a workable, accepted definition of "unclassified but sensitive" even though everyone uses the term. They also spoke about "working drafts" of documents.

The group noted that the DoD website guidelines include quality control for websites.

Responsibility for Records Management. Discussion moved to who is responsible for records management on agency websites: webmasters, records managers, or content managers. As in other visits, participants pointed to the many different administrative arrangements obtaining on websites. In some units, program personnel are "web authors," in the sense that they have complete control over screen design, content, and the mechanics of posting. Participants noted that whether or not one designates a website as an official agency publication, it is still true that the "basic look and feel" of a website is a record.

Accountability. The topic of accountability was introduced. All agreed that accountability was a valid question and that, yes, agencies were accountable for what appeared on their websites and might well be called to account. The investigator mentioned several procedural possibilities for handling accountability: periodically snapshot and save the entire site, create a historical log, or perform a risk analysis of accountability. The participants raised several points. One said that it would be a court case that decides these matters for agencies, and that all agencies could really do was wait until the case came along and federal courts handed down a binding decision. Others thought that in view of the enormous variety of administrative arrangements, the only general procedure everyone could follow would be to carry out a risk analysis. The risk analysis would be aimed at identifying "sensitive sites" where high risk of being called to account existed. Then creation of procedures appropriate to the level of sensitivity and risk would follow.

Informally, that is what is already occurring. Some agencies know from long experience that anything as public as a website is something they must watch over carefully and prepare for accountability; and they are doing so. DoD noted that its established procedure has been to give Public Affairs clearance rights over all websites, and this amounts to a kind of *de facto* risk analysis.

One person suggested--and the rest of the group immediately agreed--that it would be desirable to avoid the term risk analysis, if possible. Risk analysis connotes information systems security and the context in which accountability is being discussed is different from and broader than information systems security.

Interviews with Canadian Records Managers

During November 22 and 23, 1997, one of the investigators attended a conference in Ottawa, Canada, related to managing electronic government information resources. While attending the conference, the investigator scheduled an interview with the Archivist of Canada. The investigator also met with a number of individuals from the National Library of Canada and other government officials attending the conference regarding ERM issues.

The objectives for these interviews were:

- Identify key issues currently facing the Canadian government related to ERM of government websites and determine their applicability to the U.S. situation
- Obtain input assessing the draft guidelines[3] that the investigators distributed at the November 5 project advisory committee meeting in Washington DC
- Learn of possible ideas, policies, and solutions being developed in Canada that might be of assistance in developing and refining the draft guidelines being completed (at that time) by the investigators

In addition, the investigator was able to exchange views and ideas with conference attendees, including a number of senior Canadian government officials, on specific issues related to ERM of government websites.

The investigator concluded from these discussions that many Canadian government officials have yet to recognize the importance and significance of website ERM issues, a situation similar to that found in the U.S. In one instance, a chief information officer for a large Canadian ministry responded to a question about website ERM by indicating that paper-based records management techniques "appeared to work adequately" in his ministry. For others, the notion that there could be electronic records without an equivalent paper document simply did not register.

---

[3]The document referred to was an early draft of Chapter 6 of this report.

Interviews with the Archivist and librarians, however, revealed a very different picture. These individuals were very aware of the problems and potential problems with website ERM for government agencies. One person commented that a number of examples can be cited in which Canadian agencies have electronic information on their web without an equivalent paper copy as the "official record." To a great extent, however, they indicated that outside the archives and the National Library, there is limited awareness of issues and problems associated with ERM of government websites.

The following issues similar to the website ERM situation in the U.S. federal and state governments were identified as a result of the interviews.

- National and provincial officials have limited awareness of issues related to website ERM.
- A massive educational effort is needed to inform government officials of basic steps in records management, to say nothing of website ERM.
- If one can generalize from these relatively brief encounters, there appeared to be less individual agency development of ERM policies in Canada than in the U.S. Interviewees were very interested in obtaining copies of the various policies being developed in U.S. federal and state agencies.
- Of the significant information policy issues confronting the Canadian government, ERM is only one of many and may have relatively lower priority than others.

It was pointed out to the investigator that serious and major downsizing and reorganization has recently occurred in many Canadian government agencies. A number of these agencies are struggling simply to conduct "normal" business, to say nothing of developing policies for website ERM.

The archivist provided the investigator with a draft of a plan and policy to promote ERM in the Canadian government, entitled Networked Electronic Information: Perspectives of the National Archives and the National Library." This is a discussion document that begins to offer a framework for ERM of networked (or Web-based) information and services.

The archivist was supportive of the approach taken by the investigators in the development of the draft guidelines which he had had an opportunity to review. He especially liked the idea of breaking out responsibilities for ERM among the content provider, the records manager, and the webmaster. He noted that it might also be worthwhile to consider ERM roles for others, such as legal services and public relations. He also made some suggestions about possible differentiations as to specific responsibilities among these roles as reflected in the draft guidelines, ideas that the investigators incorporated into subsequent versions of the guidelines. Overall, many of the individuals interviewed by the investigator found the approach being developed in the project and the draft of the guidelines to offer some useful strategies for better website ERM.

Overall Findings from Federal Site Visits

The following list summarizes common themes that arose during the federal site visits. These issues are discussed in detail below.

- Official records appearing on federal websites that are not currently being captured in agency recordkeeping systems
- Three roles or sets of responsibilities emerging with regard to website ERM: webmasters, content providers, and records managers
- Two different kinds of processes producing website postings: those produced by content providers and those produced through website transactions
- The degree to which agencies exercise management and quality control over websites, such as by designating official content creators
- The use and advisability of historical logs for recordkeeping purposes
- Applicability of ERM Standards to Websites
- Accountability and the degree to which agencies view websites as a source of liability
- The extent to which website ERM fits into a management model for agency information dissemination

Official Records on Websites. In contrast to findings at the state level, federal agencies exhibited consensus that informational materials were appearing on websites that qualified as official records. The materials in question were "original," in the sense that they were not copies of materials available in some other medium such as paper or CD-ROM. The materials were original also in the sense that, insofar as interviewees could determine, they were not being transferred into existing agency recordkeeping systems. At the present time, interviewees thought that the percentage of original, uncaptured records on websites might be small, but they opined that the percentage would grow substantially in the future as new website applications were devised.

Webmasters, Content Providers, and Records Managers. From the many discussions and site visits at the federal level emerged the understanding that three different roles or sets of responsibilities come into play in website ERM. The first is what has come to be known as the webmaster, the individual who possesses technical skills and is responsible for tending network servers, managing website traffic, and actually causing postings to appear and disappear from the agency website. The second is the content provider, those persons who prepare the content of postings and who are usually found in the agency's program offices. The third is the agency records manager who has formal responsibility for carrying out the agency's records management program.

Postings by Content Providers and Transactional Postings. Website postings appear to come about in two principal ways. The first way is that content providers in program offices prepare textual, graphic, audio, and video materials; providers then transmit the materials to webmasters who cause them to be posted on websites. An example of the first way would be when a program office prepares a rulemaking and transmits the text of the rulemaking (e.g., a copy of a *Federal Register* notice) via an agency intranet to the webmaster who posts the text on the agency's website over the

Internet. The second way is a more dynamic situation in which materials are created in real time on the website. An example of the second way would be when an agency official holds a "town meeting" with members of the public via the agency's Internet website; the official and members of the public interact (i.e., transmit messages back and forth) on issues of current public interest. Interaction could occur by "chat" textual messages and/or by audio and video simulcast.

Management and Quality Controls. Records management of websites is intertwined with other kinds of management. Agencies soon learn the importance of controlling who may post materials to websites; some maintain "official lists" of personnel who are certified as being able to authorize website postings. Just as with agency releases in other media, it becomes important to institute controls over the quality of content. For example, two components within a department may be providing data from the same agency database; one component updates its postings every week but the other updates on a monthly basis. The upshot is that the public may be receiving different data on the same topic from two components within the department, a condition that sows confusion and misunderstanding. Discovering this and similar situations, the department initiates procedures to ensure quality checks for postings. These procedures may overlap with records management procedures as well.

Historical Logs. Some agencies believed that it is unnecessary to keep an exact copy of everything appearing on an agency website. They suggested that, for each posting, the agency might record the title of the posting, the author (person or office), the version number, the date posted, the date taken down from the website, and other, similar information. If, for example, a member of the public phoned to ask what became of a posting that appeared several months ago, agency staff could refer to the log and provide an answer. Currently, when postings are taken down in some agencies, they simply disappear and institutional memory of their provenance is rapidly lost. Use of historical logs was viewed as a middle course between keeping an exact copy on the one hand and keeping nothing whatsoever on the other.

ERM Standards and Websites. In late 1997, DoD issued Design Criteria Standard for Records Management Application Functional Baseline Requirements, DoD-STD-5015.2. In simpler terms, the standard dictates to DoD component agencies that, should they acquire software systems that purport to accomplish ERM, those systems must comply with DoD-STD-5015.2. Whereas in 1996 NARA had issued draft guidelines for ERM, DoD took ERM a step further. DoD reasoned that, if an agency was to manage electronic records in an electronic environment, i.e., *without* resort to paper printouts, the agency must have a software system in which to do so. DoD then set about the task of developing the specifications for such a software system.

DoD-STD-5015.2 is the outcome of that process. It is the set of rules a software system must abide by if it is to manage records in accordance with the Federal Records Act and NARA regulations and within the DoD environment. Having issued the standard, DoD then began the process of testing commercial-off-the-shelf (COTS) software system for certification that they comply with the standard, and in January 1998 issued the first such certification. Other COTS vendors were in the queue for the testing process.

DoD intended from the outset that DoD-STD-5015.2 should have applicability beyond its departmental boundaries. DoD solicited NARA's collaboration in development of the standard, and in December 1997 announced a collaboration with NARA to work toward transforming the DoD standard into a government-wide standard.

The significance of the DoD ERM software standard is that, for any federal agency that wishes actually to accomplish ERM, including website ERM, COTS software packages will now be available for acquisition and installation.

Accountability and Liability. During the site visits, the study team found that the subject of accountability uniformly succeeded in commanding agencies' attention. When realistic but hypothetical scenarios were presented painting pictures in which agencies were called to account for what was presented on their websites, agencies immediately grasped the importance of website ERM. Whether the scenario was court litigation, appearance before a congressional committee, or finding one's agency featured unflatteringly on the front page of a major newspaper because of website contents, agency personnel understood that they must begin keeping track of what happens on their websites.

Websites within Information Dissemination Models. The site visit to IRS brought home to the investigators that website management and website ERM must take place within the larger framework of information dissemination management systems. In its most recent revisions, OMB Circular No. A-130, Management of Federal Information Resources (1996), calls on federal agencies to conceive of information dissemination as a function to which management techniques must be applied in the same ways in which agencies must manage other resources such as information technology (computers and telecommunications).

Websites are, first and foremost, vehicles for disseminating agency information holdings to the public. The lesson to be gained from the IRS model was that the Internet is only one vehicle for information dissemination, albeit a powerful one. Websites, and website ERM, must be viewed within the full array of information dissemination media: mail, kiosks, telephone, CD-ROM, fax-on-demand, and whatever other new technologies may be emerging. Only when placed in a full information management system perspective will this new vehicle realize its full potential.

CHAPTER 5
SEVEN FEDERAL AGENCIES' ELECTRONIC RECORDS POLICIES: A SIDE-BY-SIDE COMPARISON

The study team compared the existing electronic records policies of seven federal agencies in side-by-side tables. The study team reviewed agency policies from:

- Department of Energy
- National Archives and Records Administration
- Office of Thrift Supervision, Department of the Treasury
- Bureau of Land Management, Department of the Interior
- Federal Aviation Administration, Department of Transportation
- Environmental Protection Agency
- Department of Defense

Members of the study team took several steps to locate information about electronic records policies specifically related to federal websites. They surveyed federal websites, posted queries to various information policy- and records-oriented listservs, and directly contacted federal webmasters and IRM managers to discover any published or draft guidance. Presented below in Tables 5.1 and 5.2 are side-by-side comparisons of written policies identified by these means.

Methodology

Federal WWW policies tend to be embedded in electronic information management policies in general, rather than having their own distinct identities. Each agency's policy was written as a separate exercise to suit the agency's own purposes and solve its own problems at the time of writing, and hence most often without reference to what other agencies might have been doing in the same policy vein. This phenomenon of "independent invention" made difficult the study team's task of comparing the policies.

The investigators began the analysis with a complete reading of all the agencies' policies. Then, they decomposed each policy into categories, one by one. As each new policy was categorized, the investigators matched categories with previously analyzed categories or created new ones, as warranted. The investigators also added their own analytic remarks in the process. When the policies clearly addressed federal use of the WWW, or when policy statements held implications for federal Web use, the investigators highlighted the table cell with bold type. Also, the investigators coordinated the representation of the tables by rearranging the rows according to NARA's simplified version of the records life cycle: (1) Creation and/or Receipt, (2) Use and Maintenance, (3) Disposition. To these three broad stages the investigators added a fourth: Dissemination.

Other information captured in the tables that fell outside the life cycle framework. This information includes bibliographic citations, statements of scope, and the Web address (URL) of each agency's homepage (including parent organization, when applicable).

Several factors complicated the analysis of agencies' electronic records policies:

- The Web is a moving target.
- Little consistency exists across agencies.
- The central focus differs fundamentally from agency to agency.
- Web policies are typically intermingled with any and all electronic records policies.
- Information management techniques developed for other media, such as paper or e-mail, do not always work well for website records management.

The WWW is evolving so rapidly that any agency attempting to set policies for its official use faces the equivalent of shooting at several moving targets at once. Because of the dynamics of the situation, most of the policies reviewed in this study should still be considered to have draft status. Consistency across agencies is seldom encountered, and common standards were not yet appearing at the time this analysis was performed. Regardless of the reason, the consequence is often an exercise in comparing apples to oranges.

For example, the draft guidance issued by NARA in 1996 attempts to set forth policy for ERM. DoD, on the other hand, proposes the baseline criteria required for building electronic recordkeeping systems (ERS) and software applications. DoD's efforts *depend on* principles of ERM, but DoD's purpose is different. NARA aims to *enunciate* ERM policy while DoD intends to *apply* ERM policy to define specifications for an ERS that embodies the policy. The two enterprises are different but closely related, and indeed, the two agencies collaborated in DoD's development work. EPA's work built upon that done by both NARA and DoD. In each case, the agency adapted the work to its own purposes: NARA worked within a government-wide framework while DoD and EPA each worked within its own mission and program framework.

A study limitation emerged from agencies' lumping WWW policies with any and all electronic records policies within the context of designing large information systems. NARA seems to place its emphasis on whether or not the electronic information can be rendered into ASCII text format and printed out on paper. NARA attempts to apply its considerable experience with paper management to the realm of electronic information by (re)converting the electronic information into paper. Although printing out electronic information in order to manage the paper as the "official" records might have been a workable interim solution in the past, this stance is inadequate to deal with the multimedia and hypertextual world of websites. Moreover, as of October 1997, the electronic-to-paper solution has been effectively voided by federal court action.

Findings

Emphasis

Department of Energy. To the degree that it blends the paper and system records management models, and by its incorporation of language to deal with complex records, DOE's policy statement is the most developed of the seven reviewed. DOE's policy pays the most attention to reconciling the traditional records life cycle with an ERS life cycle. What particularly distinguishes DOE's treatment from the others is DOE's willingness to consider ERSs *themselves* as official records. DOE appears to be unique in moving away from the paper model insofar as to contemplate what a completely functional electronic records program might be like. Rather than attach disclaimers to its electronic records suggesting that they be used "for informational purposes only," DOE moves toward a more fully integrated model, in which the information is all digitized in one way or another. The complex digital records can be optical images, multimedia, hypertext or 3-D computer-aided design models.

National Archives and Records Administration. NARA is concerned that electronic information management follow established paper information management practices. The agency's emphasis is more on turning digital electrons into paper molecules than on considering electronic information as a separate realm for records management, perhaps requiring fresh approaches.

Office of Thrift Supervision. OTS closely follows NARA's philosophy regarding records management policies vis-a-vis printing out electronic information in order to manage the paper as the official record. OTS tacitly acknowledges that electronic information may exist independently of organic media, and when such is the case, data ownership and responsibility become particularly important. OTS's electronic information (including WWW) policies emphasize that employees represent the agency through their electronic postings and therefore such postings must be tightly controlled. The OTS policies of internal data creation, use, and maintenance--the most restrictive of any of the seven policies reviewed here--could well discourage internal production of and reliance on digital information.

Environmental Protection Agency. EPA takes a pragmatic approach to ERM, while preparing to address some of the more difficult issues at a future time. The policies bridge both paper records and electronic recordkeeping systems by maintaining the paper management model (print out e-mail), while simultaneously acknowledging that "websites may be federal records subject to the same laws and regulations established for non-electronic federal records, depending on the nature of the information." EPA also specifically mentions the need to store information in format(s) that can readily comply with e-FOIA requirements, something that few of the other policies appear to consider.

Department of Defense. DoD's electronic records policy--the draft DoD STD-5015.2 reviewed for this study--pertained strictly to specifications for an ERS. While DoD's baseline criteria

for an ERS certainly draw their form from records management theory and practice, the standard is not itself an ERM policy, nor is it intended to be. ERS baseline requirements represent a minimum capability for a software system itself, and do not necessarily imply a corresponding policy for general records management. Nonetheless, the DoD criteria reveal the gap between a paper-based model of records management and a system-driven model. Many of DoD's baseline criteria can be applied to websites as records management vehicles. For example, one criterion for ERS is that "[records management applications] shall provide the capability to link original superseded records to their successor records." This requirement appears to accommodate the hyperlinking capability found in website records.

Bureau of Land Management. BLM's electronic information policy document applies almost solely to managing records databases. As with NARA, OTS and FAA, e-mail that qualifies as records must be printed out and managed as paper. Treating database entities as records helps to preserve electronic information in its native format, but without a more comprehensive examination of high-level relationships within and between more abstract information entities (a record may be very complex, even in paper format), BLM's database orientation is simply an electronic reflection of its paper records management practices.

Federal Aviation Administration. Similar to OTS's orientation, FAA demonstrates concern over the control of data creation and responsibility. Information posted electronically and publicly available through the WWW should be accompanied by official warnings or disclaimers.

Judicial Use

While DOE acknowledges that evidentiary requirements pertaining to electronic records are "in transition," the agency concludes that thorough documentation of an ERS's operations and controls are sufficient to qualify its contents as official records. It is unclear from the DOE document whether the evidentiary requirements of documentation can be extended in a practical manner to websites. DOE states in its scope that its policies cover all electronic records, "regardless of media." At present, there may be no legal precedent on which to draw with respect to the legal admissibility of hypertext and multimedia records.

Medium

NARA indicates that multimedia, interactive documents, hypertext, and websites in general cannot be reduced to ASCII without loss of content. For this reason, these media should be considered as informational only and not as official records. OTS states that because current electronic recordkeeping systems ERS "do not meet the threshold requirements for an approved ERS," electronic records must be printed out and managed in their official paper form. Besides the implausibility of such strategies for handling websites, it is hard to see how this requirement can be reconciled with that of ensuring "the efficient and cost-effective use of electronic information." Contrast the NARA and OTS positions to EPA's, which states that: "It is the nature of the information itself that determines its status as a federal record." Some agencies focus on the

information medium to determine whether information should constitute an official record; others state clearly that the medium is incidental and that the information itself is the only true litmus test of record status.

Attachments and Links

In a records world composed strictly of paper, attachments can be included with and indexed to parent documents fairly easily. In a physical sense, they (or photocopies, when necessary) simply are kept together when filed. For indexing, cross-references are evolved to indicate relationships. With electronic documents, paper-based methods may become both overwhelmed and inadequate. Hyperlinks create records in which elements exist simultaneously in multiple different physical locations. If these locations are not carefully coordinated, then it may be hard to maintain currency. Embedded objects, such as graphics, sound, video, or interactive forms, further complicate the picture. Websites typically are dynamic, with their content and/or format changing frequently. EPA requires that recordkeeping systems "link original superseded documents to their successors." DoD and NARA note have the same stipulations.

Levels of Complexity

Nearly every agency's policy includes some statements about linking attachments to the parent document or maintaining an audit trail of changes through subsequent versions. In paper formats, procedures for accomplishing linkages have developed over a long period of time. With newer types of information entities such as websites or multimedia documents, the level of complexity involved rises appreciably without hope of mitigation from a traditional solution.

NARA indicates that some mediation of the complexity can be dealt with through the use of metadata. Metadata records may themselves fall prey to the levels problem (as discussed in a recent report on the state of GILS. (Moen and McClure 1997)

BLM's approach to records as database elements contrasts to that of DOE. DOE considers complex records as falling somewhere between files (as in a collection of records, following the database example) to looking at the recordkeeping system itself as a record, which would necessarily be represented as metadata.

Security and Responsibility

The policies of all the agencies include language directed at ensuring the security of the electronic system or the content of the information presented, and sometimes both. Evidently OTS and FAA regard public access to the agencies' records via computer networks, or even dissemination of records by agency personnel via networks, to be risky. In both cases, the agencies repeatedly stress the personal responsibility of agency personnel to follow procedure in creating, accessing, and obtaining clearance to use federal computer networks. To an extent, security even dominates OTS's and FAA's discussions of electronic records.

Other agencies fall along a spectrum paralleling their emphasis of paper versus information systems management, with EPA and DOE appearing the most congenial to widespread access to their electronic information (usually this means public access to agency websites). With OTS and FAA, the agencies' checks and balances fall largely upon personnel to observe and enforce; in the more systems-oriented policies (especially those of DOE and DoD), the controls are designed into the system's processes themselves.

Implications for the Records Management of Government Websites

Examination of the policies summarized in Tables 5.1 and 5.2 reveals three electronic record management strategies: paper management, a parallel system of paper and database management, and management of ERS.

- **Paper Management**. A paper management strategy forces electronic records to conform to traditional paper management techniques, even if that means printing out the electronic information, managing the paper, and stating that the digital version (even if the digital is the original, which is increasingly the case) is informational only. Although agencies are now creating the great majority of their information electronically in the first place, this strategy remained the overwhelmingly prevailing practice at the time this research was carried out.
- **Parallel Systems: Paper and Databases**. The second strategy is to focus on the development of records databases while maintaining a traditional paper records management operation. While at first glance this may seem to be different from the paper model, it is in fact similar in that many agencies have significant experience managing databases. This is another approach that reuses methods derived from familiarity with a form of information management. Database management systems combine data relationships with organizational rules and procedures to present a reliable, but limited, system in terms of adaptability to change.

  Databases are ordinarily highly specialized. It is here where the level- of-complexity problem enters. What is probably really happening with the organization is that two distinct records systems exist, one the database and the other paper. A lack of integration of the two means that the agency is not managing complex records electronically, and hence complex electronic records--even those as common as e-mail--either are printed out and managed as paper, or they must bear disclaimers denying official status. Because paper documentation shows no signs of disappearing anytime soon, this dual approach of maintaining simultaneous paper and electronic records operations may dominate federal agencies for some time. At this point in history, a transition between paper and electronic media means that the price of records management for federal agencies will be high. This is especially true as long as agencies insist on printing out records already in digital form.
- **Electronic Recordkeeping Systems**. A third strategy is to integrate the procedures and rules of databases within a more sophisticated information system, one capable of handling complex informational relationships and media formats. The ambition of both DOE and DoD is to build ERS that can manage information flow rather than static paper. EPA's draft policy

positions that agency to take advantage of an ERS on the scale proposed by DOE and DoD, but the agency does not currently possess such a system.

The levels-of-complexity problem is inherent in the integrative strategy. Conceivably, a well-designed website could operate as an ERS. Among the virtues of websites is their ability to create, maintain, and archive complex documents (ASCII, too). A website may operate as an ERS and, with a metadata profile may even be accorded its own record status through GILS.

What remains unanswered is whether NARA will issue regulations stipulating that the contents of the website, even if designed as an ERS, constitute official records. To reverse the field of records definitions, optical scanning of paper records into an ERS indicates how an entire collection (perhaps at great expense) can be digitized. The converse of converting all electronic documents to paper is neither practical nor possible at this time. ERS do not require a WWW architecture, of course, and numerous ERS exist using older technology. This study found no instance of a government website operating as an official ERS.

Security

Many agencies regard websites as windows through which agency personnel and/or the public may peer at selected information. Although the WWW clearly presents unparalleled opportunities for public access to public information, some agencies still appear to regard the Internet with skepticism. Some agencies see the Internet not so much as a window through which clients peer as a window through which hackers crawl. Computer network security worries will persist into the foreseeable future.

Despite hesitation due to prudent caution or resistance to change, however, federal websites increase in size and number by the day. EPA's website contains over 70,000 pages as of this writing and grows rapidly. As the number of webpages rises into the hundreds and thousands within agencies the same creation, maintenance, archival, and dissemination issues that have confronted records managers for many years re-emerge in the guise of websites. Hackers have broken into several federal websites, including the Air Force, NASA, CIA, Department of Justice, and Social Security Administration, and produced "spoofs" of the official websites. In these instances, at least the intruders' malevolent intentions did not do irreparable damage to the websites. Many means exist to address website security, although websites are as vulnerable to attack as is any computer network.

The Electronic Freedom of Information Act Amendments of 1996

E-FOIA mandated that by October 1, 1996, all federal agencies must make every reasonable effort to provide government information to requestors in whatever format they ask, provided that the government has information in that or an easily convertible format to begin with. So far, few agencies possess effective means to comply with the e-FOIA law. The shortcomings may be either technical or institutional, or both. Nevertheless, e-FOIA is a harbinger of things to come. The age of electronic information is here, and agencies of every size and composition must comply equally

with the e-FOIA law. ERS will be key to meeting the e-FOIA mandate. WWW technologies look especially promising for providing public access to agency records.

Federal ERM Policy in Disarray

When this research project began in January 1997, federal agency ERM was governed by the NARA regulation known as General Records Schedule 20. In its pertinent parts, GRS-20 stated that agencies must transfer electronic records into recordkeeping systems. The recordkeeping systems could be either paper-based or electronic. That is, GRS-20 explicitly permitted the possibility that agencies could print out electronic records and manage them in paper-based systems.

This state of affairs was thrown into disarray on October 22, 1997, when Federal District Court Judge Paul Friedman issued a summary judgment in which he ruled that "GRS 20 -- a regulation governing the disposal of electronic records created by agencies of the federal government -- is arbitrary and capricious, irrational and contrary to law." (Public Citizen v John Carlin 1997) At the conclusion of the research project, therefore, it is fair to say that each of the seven policies reviewed in this chapter must be revised, with the probable exception of the DoD standard (which is not a policy, after all, but a software standard). Hence, although it is instructive to review the policies in Tables 5.1 and 5.2 as indicators of the status of federal ERM policy in 1997, six of the policy documents must be regarded as candidates for substantial revision in the near future.

Table 5.1. Electronic Records Policies in DOE, NARA, and OTS

Life Cycle Stage[4]	Subject[5]	Dept. of Energy[6]	National Archives and Records Administration	Office of Thrift Supervision (Dept. of the Treasury)	01
		< http://www.doe.gov/>	http://www.nara.gov/	http://www.ustreas.gov/ http://www.ots.treas.gov/	02
	Citation	Electronic Records Management Guide. 12/06/96.	Draft: Records Management Requirements for Electronic Record keeping - Instructional Guide Series. [May, 1997?]	Administration Policy Issuance No. API-0501, 05/29/96. Electronic Information Policy.	03
	Scope	Ch. I, 1. Purpose: This document provides guidance on managing electronic records, including their disposition, regardless of media.	[Para. 1]: Preliminary guidance for agencies that have decided to maintain and preserve their records in electronic form when automating office operations.	**The electronic information policy applies to all electronic information, regardless of storage medium or format.**	04
Creation &/or Receipt	Policy Status of Electronic Records	III. (5) Judicial Use: Electronic records may be admitted in evidence to Federal courts for use in court proceedings if trustworthiness is established by thoroughly documenting the recordkeeping system's operation and the system management controls imposed upon it.	**[Para. 2]: The absence of standards for appropriate preservation of: records stored in formats that cannot be converted to ASCII without loss of content and some records related or linked to other records prevents their inclusion.**	pp. 3-5, Policy 4(a): At the present time, recordkeeping systems do not meet the threshold requirements for an approved electronic recordkeeping system. . . electronic records must be printed out and maintained in the appropriate paper filing system.	07
				TABLE 5.1 CONTINUES	

[4] The information life cycle represented here is in its simplest three-stage form:

1. Creation &/or Receipt
2. Use & Maintenance
3. Disposition.

[5] The Subject column is for use as a thumbnail index, and is far from comprehensive. Underlining provides a secondary finding aid intended to highlight essential phrases or linkages within the cells.

[6] DOE provides two distinct perspectives -- one for records management and the other for electronic recordkeeping systems. A third perspective emergent in the policy is that of blending the paper and system life cycle perspectives. Examples are the DOE document's treatment of Information Systems as Records, as well as its inclusion of a section on Complex Electronic Records.

Creation &/or Receipt	Definitions (selected)	I (3-5): (p) *Records* - All books, papers, maps . . . (44 U.S.C. §3301). (k) *Electronic Records* - Any information that is stored in a form which only a computer can read or process and that satisfies the definition of a Federal record. (m) *Information system* - A discrete set of information resources organized for the collection, processing, maintenance, transmission, and dissemination of information, in accordance with defined procedures. V. Special Issues: (11, V-13) *Complex Electronic Records* - are those electronic records composed of multiple computer files intended to be viewed on a computer screen. Printing those records to paper may result in a loss of some of the records' informational content.	[Para. 40], Appendix A: Definitions: *Document* - (1) Recorded information regardless of physical form or characteristics. Often used interchangeably with record. (2) An individual record or an item of nonrecord materials or of personal papers. *Electronic information system* - A system that contains and provides access to computerized Federal records and other information (36 CFR 1234.2). *Electronic recordkeeping system* - An electronic system in which records are collected, organized, and categorized to facilitate their preservation, retrieval, use, and disposition (36 CFR 1234.2).	pp. 1-3: (d) *Nonrecords in electronic form* - (1) Working papers and personal notes in electronic from that have no record value because they provide no rationale, sense of direction, or guidance above and beyond that documented in official files. (a) *Electronic Information System* - A system that contains and provides access to computerized Federal records and other information (36 CFR 1234.2).	10
				TABLE 5.1 CONTINUES	

Creation &/or Receipt	Complex electronic records Multimedia Hypertext and Websites 3-CAD	**Ch. V, Special Issues -- (11) Complex Electronic Records:** **a. *Multimedia* documents . . . are best used as information only documents.** **b. *Linked records* (such as embedded objects) . . . any time a component of a set of linked files is changed the entire set must be saved as a new revision . . . that way a revision audit trail can be maintained for the record.** **c. *Hypertex*t documents . . . At this time it is recommended that Web pages on an Internet server be viewed as information only documents and not records.** **d. *3-D Computer Aided Design Models* . . . Record managers should work with the appropriate engineering and construction organizations to decide how the records information should best be managed. Options include electronic or hardcopy management.**			13
Creation &/or Receipt	Electronic Recordkeeping Systems (ERS)	**Ch. V, Special Issues -- (10): Most organizations, due to the complexities and logistics involved, have considered information systems by themselves to be nonrecord copy to be used as information only.**	[Para. 25]: Record keeping system should allow records to be assigned more than one filing classification.		22
				TABLE 5.1 CONTINUES	

Creation &/or Receipt	Admissability as records	Ch. II, Creation and Receipt; (2) Receipt of Electronic Records: If electronic records (including e-mail) are received with inadequate documentation, and/or if they require a hardware of software platform that is not available or is obsolete, the records are rendered useless.		p. 3, Policy 4(b): All records created, used, maintained or stored in electronic form will be retrievable, protected from unauthorized access and disclosure, and disposed of only in compliance with approved records retention schedules.	25
Creation &/or Receipt	Agency Representation Accountability & Restrictions			P. 9, Responsibilities, 5(f-8): Use Interagency and Internet e-mail, browser access and the Treasury Bulletin Boards in a responsible and informed manner. . . what they say of do may be interpreted as an OTS opinion or policy.	31
Creation &/or Receipt	Authenticity	Ch. II, Creation and Receipt; (3) Authentication/Approval: All records requiring authentication must be dated and either signed, initialed, stamped, or otherwise attested to the authenticity.	[Para. 7]: Currently, Government agencies continue to maintain official files in paper form because their automated systems lack functionality for the management of electronic office files.	P. 5, Responsibilities, 5(a-1): Practices and procedures are implemented to protect information form from loss, removal, theft, or unauthorized access, release or alteration.	34
Creation &/or Receipt	Format for posting information	Ch. II, Creation and Receipt; (4): Electronic records should include: a. accompanying information to allow . . . indexing b. all available documentation c. submitted in duplicate (one copy for archive)	[Para. 21], Attachments: Attachments and related records in varying formats may be recorded if designated a Federal record. [Para. 23(d): If the recordkeeping system permits the storage of files in multiple native formats, provide the capability at least to view each file in its native format or its equivalent.		37
				TABLE 5.1 CONTINUES	

Creation &/or Receipt	Documentation	Ch. II, Creation and Receipt; (1) Creation of Electronic Records: Instructions for retrieval and/or preservation must be documented in a manner to ensure long-term readability. V-10, Quality Control and Quality Assurance: Describe the quality control and quality assurance measures or procedures implemented to ensure data accuracy and integrity.	[Para. 37, System Documentation]: Adequate system documentation must be maintained.		40
Use and Maintenance	Migration	Ch. II, Creation and Receipt; (1) Creation of Electronic Records: Electronic media that are suitable for business or archival purposes should be constantly reevaluated as a joint effort between users, computer operations administrators, and records management personnel.	[Para. 27]: The agency needs to identify all of the software, including specific versions, that is required to read records stored in the electronic recordkeeping system. [Para. 38, Migration of Data]: Continued accessibility must be maintained through subsequent updates.		43
				TABLE 5.1 CONTINUES	

Use & Maintenance	Efficiency & Cost - effectiveness	Ch. III, Use and Maintenance; (1) Records Storage and Maintenance: (b) Before selecting a storage medium or converting from one medium to another, consider: 1. The authorized life of the record 2. The effort necessary to maintain the record 3. The cost of storing and retrieving the records over the life of the media or record 4. The records density (*sic*) 5. The access time to retrieve stored records 6. The portability of the medium 7. Whether the medium meets current applicable Federal Information Processing Standards	[Para. 11], Background: Adoption of electronic recordkeeping must be based on agency mission requirements and the functional processes that produce records.	P. 6, Responsibilities, 5(a-3): Ensure the efficient and cost-effective use of electronic information.	46
Use & Maintenance	Integrity Web		**[Para. 29, Integrity of Records]: The system must prevent any alteration of the record. Any changes that are made to Federal records in the system should be recorded only as new records. All records that revise previous records should be linked so that a request for one can produce all versions.**		49
				TABLE 5.1 CONTINUES	

Use & Maintenance	Access Security	Ch. III, Use and Maintenance; (4) Records Security: a. authorized personnel b. backup and recovery c. personnel are trained to protect sensitive or classified electronic records d. minimize the risk of unauthorized alteration or erasure e. ensure that electronic records security is included in computer systems security plans prepared pursuant to the Computer Security Act of 1987 (40 U.S.C. 759).	[Para. 28]: Only authorized personnel gain access to system functions and to the records in the system. Normal, controls on filing and retrieving records would be the same for electronic records as it is with paper records series. However, in electronic Record keeping systems, the agency may need to control access at the individual document or data-element level.	p. 4, Policy 4(l): Internet browser access will be limited to staff with a well-defined business need. Requests for access must be made in writing and approved by the Executive Director / Chief Counsel responsible for the requesting staff's program area.	55
Use & Maintenance	Maintenance responsibilities	**Ch. V, Special Issues; 1(b) Use and Maintenance: Regular, independent assessments.** **V-10, Operational Procedures: Procedures should be approved and in effect for all system operations including data entry, correction, modification, or deletion; database administration; and modifications to and testing of the software.**	[Para. 8 & 14], Background: Each individual on a computer network who exercises control over electronic documentary materials, such as electronic mail messages, must assess those materials for records status and take appropriate action . . . In many instances this will be the end-user.	p. 7, Responsibilities, 5(d): Electronic Information System Owners are responsible for ensuring that information is preserved according to approved records retention schedules and for maintaining data integrity and appropriate documentation when updating of modifying the system.	58
Use & Maintenance	Training	Ch. III, Use and Maintenance; (4) Records Security: c. ensure that appropriate personnel are trained to protect sensitive of classified electronic records	[Para. 17], Records Creation & Receipt: In some instances, the system may automatically capture records at a certain stage of processing without user action. In other cases, users will have to be trained to know when documents are Federal records that must be maintained in an unaltered state.	p. 7, Responsibilities, 5(b-2)b: Provides training on electronic information including handling, maintaining, disposing of such information.	61
				TABLE 5.1 CONTINUES	

Use & Maintenance	Key data elements	Ch. III, Use and Maintenance; (2) Records Retrieval: Electronic records should be uniquely identifiable and properly indexed, based on key fields, to ensure accurate retrieval.	[Para. 19 & 23 (h)]: Assign or capture required metadata for each record when the record is filed.		64
Use & Maintenance	Attachments		**[Para. 21, 23(c)]: Link supporting and related records and related information such as notes, marginalia, attachments, and electronic mail return receipts to the record. If electronic records which should be retrieved together are stored at multiple physical locations, or on diverse storage media, allow users to retrieve them so they can be used together.**		67
Use & Maintenance	Audit Trails		**[Para. 29, Integrity of Records]: All records that revise previous records should be linked so that a request for one can produce all versions.**		70
Use & Maintenance	Backups	Ch. III, Use and Maintenance; (1) Records Storage and Maintenance: f. Back up electronic records on a regular basis to safeguard against the loss of information due to equipment malfunctions or human error.	[Para. 30, Backups]: Provide the capability, as determined by the agency, to automatically create backup or redundant copies of the records as well as their metadata.		73
				TABLE 5.1 CONTINUES	

Disposition	Schedules Permanence	Ch. IV, Disposition; (3): Most electronic records, like most hard copy records, do not warrant permanent preservation in the National Archives.	Para. 35, Records Management Requirements for Records Disposition: (b) Require an authorized individual to validate record destruction and tranafer. The system will identify records that have reached the end of their scheduled life; however, it will not automatically destroy material. (e) Allow the identification of unscheduled records (those with no approved disposition). (f) Provide an audit trail of disposition actions.		76

Table 5.2. Electronic Records Policies in EPA, DoD, BLM and FAA

Life Cycle Stage	Subject	Environmental Protection Agency	Department of Defense	Bureau of Land Management (Dept. of the Interior)	Federal Aviation Administration (Dept. of Transportation	01
		http://www.epa.gov/	http://www.dtic.dla.mil/ http://www.dtic.dla.mil/c3i/recmgmt.html#d5015	http://www.doi.gov/ http://www.blm.gov/	)http://www.dot.gov/ http://www.faa.gov/	02
	Citation	EPA Records Management Policy Manual, Final Draft. Chapter 5: "Electronic Records." July 25, 1997.[7]	Department of Defense Design Criteria for Records Management Application, Functional Baseline Requirements, Draft 2. Directive DoD-STD-5015.2. August 08, 1997.[8]	Attachment 1-1. "Guidance for Information Stored and Transmitted Electronically." 4/25/97.	Order 1370.79, 11/18/96. "Internet Policy."	03
					TABLE 5.2 CONTINUES	

[7] Appendix A to Chapter 5 is devoted to functional criteria for official agency electronic recordkeeping systems (ERS). Policies for both electronic records and ERS appear in the table cells.

[8] The entire DoD document is a standard for designing electronic information systems; or, in the NARA language, official agency electronic recordkeeping systems.

	Scope	1. Purpose: Define the Agency's electronic records management policy, identifies its objectives, states authorities and responsibilities, and enumerates criteria for electronic records management systems. 2. Objectives: a. Provide policy framework to manage electronic records through their life cycle **b. Policy framework to include, but not limited to optical images, word processing documents, spreadsheets and databases, e-mail, websites, and information systems (as records)** d. Ensure adequate records of Agency activities	**p. ii, Foreword, (4): . . . establishes program responsibility for the DoD Records Management Program under Asst Secretary of Defense for Command, Control, Communications, and Intelligence (ASD C31). The Directive updates policy and responsibilities for life-cycle management (creation, maintenance, storage, use, and disposition) of organizational records on all media, including electronic.**	Index, I: "Questions to Ask When Using Bureau Information in an Electronic Format: p.4c - Do Records Management Laws Apply to Electronic Records?" **No matter in what format the information may reside, most documentary materials created are subject to the provisions of the laws that have been codified in Title 44 of the U.S.C.; p. 1, Purpose (1): "This order establishes agency wide policy on the use of the Internet, or similar electronic communication media, by BLM users (e.g., employees, regions, support contractors using BLM supplied equipment, *etc.*).**		04
Creation &/or Receipt .	Policy status of electronic records	2. Objectives: **e. Encourage Agency components to manage electronic records electronically where it is efficient and effective to do so.** 4. Background and Definitions, (a) Electronic mail: **It is the nature of the information itself that determines its status as a federal record.**	No specific statements regarding the policy or legal status of electronic records. The first line of the Foreword states, however: "This standard is approved for use by all Departments and Agencies of the Department of Defense (DoD)."	**[p. 5], "What Bureau Information is Releasable?":** **Three categories:** **(1) Public - view for free** **(2) Discretionary (Public) - view and output for a fee** **(3) Nonpublic.**	**pp. 5-6: Policy 5: The FAA Internet . . . will be used as an official source for information access, dissemination, and business transactions with the public and FAA users. [As long as] Providing the official warnings / disclaimers . . .**	07
					TABLE 5.2 CONTINUES	

Creation & Receipt	Definitions (selected)	4. (b) Definitions: 1. *Electronic record* - any information that is recorded in a form that requires a computer or other machine to process it and that satisfies the legal definition of a record in 36 CFR 1234. 2. *Electronic records management* - the processes used to create, maintain, use , transfer, and dispose of electronic records entirely in electronic media.	pp. 6-21 Definitions: 3.2.7 *Authentic Record* - A record that can be proven to be genuine based on its mode (*i.e.*, method by which a record is communicated over space or time), form (format/media that a record has when it is received), state of transmission (the primitiveness, completeness, and effectiveness of a record when it is initially set aside after being made or received), and manner of preservation and custody.	[p. 2], Ia: *Federal record* - [Federal Records Act] 44 U.S.C. §3301: "All books, papers, maps, photographs, electronic materials or other documentary materials . . . in connection with the transaction of public business . . ." [9]	pp. 1-5: Standard definitions of: E-mail FTP Gopher Home Page HTTP Internet Posting TCP/IP Users (FAA users) WWW	10
Creation &/or Receipt	Complex electronic records	**4(a) Intranet and Internet homepages and websites may be federal records subject to the same laws and regulations established for non-electronic federal records, depending on the nature of the information.**				13
					TABLE 5.2 CONTINUES	

[9] The definition of a record according to Federal Records Act (FRA) differs from that of FOIA. For FOIA, an agency record is the original or any copy existing at the time of the request . . . The Supreme Court has provided a basic two-part test for determining what constitutes a Federal agency record under FOIA: "Agency Records" are documents which are:

o Either CREATED OR OBTAINED by and agency, and
o Under agency CONTROL at the time of the FOIA request.

Creation &/or Receipt	Classifying records	Appendix A, Criteria for Electronic Record Keeping Systems: I.1: **Enable the user to distinguish between record and nonrecord materials.**				16
Creation &/or Receipt	Information Retrieval	Appendix A: **I.b.2 Allow searches on defined data fields** **I.b.5 Provide an index to all records** I.b.7 Provide the capability to copy records into a user work space and effectively distinguish between working and final versions of records.				19
All phases	Electronic Recordkeeping Systems (ERS)	5. (a) Criteria for Electronic Recordkeeping Systems (See also Appendix A): 1. Grouping of related records 2. Easy and timely retrieval 3. Retain in a usable format 4. Be accessible **5. Preserve transmission and receipt data for e-mail** 6. Permit transfer of permanent records to NARA (electronically) Appendix A: **I.a.12 Allow a record to be assigned to more than one file category.** I.d.9 Describe the quality control and quality assurance measures or procedures.	p. 27, (5) Detailed Baseline Requirements; Identifying and Filing Records: **5.2 RMAs shall assign a unique, computer-generated record identifier** **5.2.5 Standard metadata minimum profile** **5.2.9 Allow a record to be assigned to more than one file when appropriate** p. 43, System Audits: 5.11.3 Capability to store audit data as a record 5.11.4 Shall be reported on demand: a. Total number of records b. Number of records by record file code c. Number of accesses by file code.	[p. 8], III(b): **All automated records systems [must] meet integrity and quality standards prior to use for agency decision making, and therefore must first be approved as official agency records.**		22
					TABLE 5.2 CONTINUES	

Creation &/or Receipt	Admissibility			[p. 8], III(b): . . . any manual or automated Bureau record that has met all legal and administrative standards of trustworthiness as legally admissible evidence in court.[10]	**Policy 5(d): (1) Post only official FAA information that has been appropriately cleared for release.**	25
	Creation Web	6. Responsibilities (a) Agency Records Officer: **(2) ARO and Records Liaisons should coordinate with personnel responsible for Agency homepages and websites to ensure that proper records management procedures are followed**				28
Creation &/or Receipt	Agency Representation / Accountability & Restrictions	6. Responsibilities (a) Agency Records Officer, (3): Questions or situations falling outside existing policy and requiring new determinations will be forwarded by the ARO or the Agency CIO.			FAA users may not perform activities such as: posting information, joining news groups, transacting e-mail, or using FAA addresses in a way that would directly or indirectly in a way that would give the impression that their statements constitute FAA policy.	31
					TABLE 5.2 CONTINUES	

Creation &/or Receipt	Authenticity			[p. 6], II(b): Draft databases are Category 3 (nonpublic) records, and not reviewable under the FOIA. "Draft" records should not be used internally for decision making since integrity and quality standards have not yet been met.	**11a (1): Due to the unsecured information flow on the Internet, it is recommended that no official replies or interpretations be made via electronic media.**	34
Creation &/or Receipt	Format for posting information	**Appendix A: I.a.14 Store records in forms or formats that can be readily reproduced into different forms or formats for interagency use and in accordance with 5 U.S.C. 552 (a)(3)(B)[Electronic FOIA].**			**p. 13, Internet Access, 11b: Guidelines for posting information via the WWW, including linking WWW pages, and gopher servers shall be established and issued by the Office of Information Technology.**	37
Creation &/or Receipt	Documentation	Appendix A: I.d.8 Document approved procedures for all system operations . . . I.d.9 Describe the quality control and quality assurance measures or procedures implemented.				40
Use & Maintenance	Migration	4. (a): Data Portability / Migration: Ensure portability of federal electronic records from old to new technology. Appendix A: I.d.7 **Document how future migration or upgrade plans for the system will handle hardware, software, or operating changes or obsolescence while still being able to properly retain and maintain records until disposition.**	p. 46, 5.13.3 **Ability to Read and Process Records: The organization shall ensure that it has the ability to view, copy, print, and if appropriate process any record stored in RMAs for as long as that record must be retained.**			43

					TABLE 5.2 CONTINUES	
Use & Maintenance	Integrity Web	6. Responsibilities / Personnel Responsible for Internet and Intranet . . .: **(1) Appropriate linkages are established and maintained between webpages and recordkeeping systems so that webpages rise to the level of federal records and are not elsewhere captured as records and are transferred to and maintained in Record keeping systems.** **Appendix A: I.a.11 Link original superseded documents to their successors.**	p. 25-26, (5) Detailed Baseline Requirements: 5.1 Each file category code shall be linked to its associated file or category and to its higher level category code. **5.2.15 RMAs shall provide the capability to link original superseded records to their successor records.**		**(2) Controlling all information posted by its users (employees and contractors) on the Internet, WWW, Gopher sites, FTP sites, and the participation or sponsorship in newsgroups or any other electronic service media.** **(3) Establishing a process to review and approve the means and creation of WWW pages within their organization and to coordinate appropriate linkages to the FAA home page AIT.** **(4) Establishing a process to ensure all information posted by their organization and users is consistent, reliable, accountable, and has been coordinated with similar information posted by other FAA organizations.**	49
Use & Maintenance	Readability	**Appendix A, I.a.3: Provide the capability to view files in their native format or its equivalent.**	**p. 30, 5.2.16: RMAs shall manage and preserve any record composed of discrete units in such a way that it can be reproduced and viewed in the same manner as the original.**			52
					TABLE 5.2 CONTINUES	

Use & Maintenance	Access Security	Appendix A, I.b.1: Enable the Agency to determine and control the level of access to the recordkeeping system for authorized users.	p. 25-26, 5.1.1: RMAs shall provide the capability for only authorized individuals to create, add, edit, and delete organizational record categories, files, [5.1.2] dispositions schedules and their codes.		10a (1): Approvals. Each organization shall establish appropriate le . . . for its users to gain Internet access (including e-mail) or electronic system media access.	55
				[p. 9], IV: E-mail should be treated the same as paper records . . . print a copy of the e-mail file, add a subject code, and send it to Central Files . . .	[Data maintenance and integrity] . . . is the responsibility of each FAA user and organization . . .	58
Use & Maintenance	Training	6. Responsibilities, (a) Agency Records Officer: (1) ARO and Records Liaisons should ensure that training in electronic records management is incorporated into records management training programs (b) So that individual users may determine the records status of their e-mail messages, proper training in record identification is necessary. Appendix A: I.d.10 Document user training to show that users are qualified to enter, retrieve, modify or delete data in the system; database administration functions; general user training.			10a (1): . . . strongly encouraged that users receive appropriate administrative and technical training before access is approved . . .	61
					TABLE 5.2 CONTINUES	

Use & Maintenance	Key data elements	Appendix A: I.a.8 Capture required metadata for each record when filed and link metadata to record for purposes of display and transport. I.a.9 For e-mail, capture and automatically store: a. E-mail name and address of sender b. E-mail name and address of addressee c. E-mail name and address of other addressees d. Subject of the message e. Date of transmission f. Attachments	p. 30, Detailed Baseline Requirements: 5.2.18 RMAs shall link the record metadata to the record so that it can be displayed when needed and transported with the record when a copy is made and transmitted to another location.			64
Use & Maintenance	Attachments	Appendix A: I.a.2 link supporting and related records and related information such as notes, marginalia, attachments, and e-mail return receipts, as well as all profile data, to the record. I.d.5 System Links to Other Systems -- Identify all links and network configurations used to receive, use, or exchange data with other computer systems. Include the names of the other systems and description of what information is exchanged and how that information is exchanged.	p. 30, Detailed Baseline Requirements: 5.2.14 RMAs shall link supporting and related records and related information such as notes, marginalia, attachments, and e-mail return receipts, as well as all profile data, to the record.			67
					TABLE 5.2 CONTINUES	

Use & Maintenance	Audit Trails	6. Responsibilities: Personnel Responsible for Internet and Intranet . . .: (2) An historical log of postings on homepages and websites is created, maintained and treated as a federal record for purposes of accountability. Appendix A: I.bc.5 Provide an audit trail of disposition actions.	5.12.4 The system shall provide the capability to rebuild forward from any backup copy, using the backup copy and all subsequent audit trails. This capability is typically used to recover from storage media contamination of failures.			70
Use & Maintenance	Backups	Appendix A: I.b.6 Provide the capability to automatically create backup or redundant copies of the records and their metadata. I.d.6 Disaster Planning - Describe how records access downtime is minimized and what alternative methods, if any, are available when experiencing failures ranging from minor to catastrophic . . . Documentation should also include plans for periodically reviewing and testing the adequacy and deficiencies of the disaster recovery plans.	p. 44, System Audits: 5.12.1 Backup of Stored Records - The RMA shall provide the capability, as determined by the agency, to automatically create backup of redundant copies of the records as well as their metadata.			73
Disposition	Archiving	Appendix A: I.a.10 Automatically date files saved as records.				79
					TABLE 5.2 CONTINUES	

Disposition	Disposition Responsibilities	6. Responsibilities (b) Information Systems Managers: IS managers should ensure that proper record keeping policies and procedures are implemented for existing and proposed information systems. Individual users determine records status of their own e-mail. Appendix A: I.c.1 Enable the Agency to implement authorized disposition schedules I.c.3 Enable authorized personnel to assign and change record disposition and reschedule records when original disposition instruction change.	p. 46, 5.13 Additional Baseline Requirements: 5.13.3 Ability to Read and Process Records - Since RMAs are prohibited from altering the format of stored records (5.3.2), the organization shall ensure that it has the ability to view, copy, print, and if appropriate process any record stored in RMAs for as long as that record must be retained. The organization may meet this requirement by (1) maintaining the hardware and/or software used to create or capture the record, (2) maintaining hardware and/or software capable of viewing the record in its native format, (3) ensuring backwards compatibility when hardware and/or software is updated, or (4) migrating the record to a new format before the old format becomes obsolete. Any migration shall be controlled to ensure continued reliability of the record.			82
					TABLE 5.2 CONTINUES	

Dissemination	Releasing information over the Internet Disclaimers			**[p. 6]: The following disclaimer statement must be used when information from draft databases is released:** **"No warranty is made by the BLM as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data."**	5. Include the appropriate warnings / disclaimers / notices required to access or release the information posted by their organization.	85

CHAPTER 6
GUIDELINES FOR ELECTRONIC RECORDS MANAGEMENT ON STATE AND FEDERAL AGENCY WEBSITES

Introduction

The purpose of this research project, supported under a grant from the National Historical Publications and Records Commission (NHPRC), was to develop records management and preservation strategies for electronic information contained in state and federal agency websites. More specifically, the project aimed to:

- Provide a framework for understanding records management issues posed by government websites
- Provide a statement of records management principles that apply to government websites, based on an empirical assessment of state and federal website activities
- Provide model guidelines for webmasters and records managers concerning management and preservation of electronic records on government websites
- Promote awareness in archivists and records managers about measures for managing and preserving historically valuable records on government websites

In the course of their research, the investigators:

- Selected and convened an advisory committee made up of experts from the federal and state information resources management communities with special emphasis on records management and archival expertise
- Formulated records management issues posed by government websites
- Assessed empirically the degree to which federal and state agencies currently address these issues in their websites
- Interviewed webmasters and records managers concerning their practices, attitudes, and opinions towards records management in the website environment
- Developed a set of model "best practices" guidelines concerning records management on websites
- Disseminated widely the guidelines within the federal and state information resources management communities

In the data collection stages of the research project, a study team at Syracuse University focused in early 1997 on locating information from state websites, state employees, and listservs related to records management. They searched all 50 states' websites; subscribed to, monitored, and interacted with listservs pertinent to records management; and conducted electronic mail and telephone surveys in all 50 states concerning electronic records management (ERM) and records management on websites. In addition to these surveys, other data collection techniques the investigators used were questionnaires, focus groups, and in-depth interviews. The investigators

conducted site visits to three states and five federal agencies. They made presentations to, and collected data from, the National Association of Government Archivists and Records Administrators (NAGARA), the National Records Management Conference of the U.S. Environmental Protection Agency, the World Wide Web Federal Consortium, the Federal Webmasters Forum, and the FedNet '97 conference. The research profited from several informal meetings with senior staff at the U.S. National Archives and Records Administration and the National Library of Canada, meetings conducted independently by the investigators and not funded under the NHPRC grant.

The project advisory committee met twice, in February at the outset of the research and in November, at the point when the investigators had finished data collection and were formulating preliminary conclusions.

A final report provides in detail the project's methodologies, data collection activities, related literature analysis, side-by-side analysis of seven agency policy statements, and other study products. The final report, as well as a copy of these guidelines, can be found at <http://istweb.syr.edu/~mcclure/>.

Website Records Management

Ground-Rule Assumptions

State and federal agencies are public bureaucracies, and, as such, they share many common characteristics. They also are widely diverse organizations with respect to legal and regulatory structures, as well as mission, size, scale, organizational complexity, and many other factors. In approaching the task of proposing model guidelines for website records management in state and federal agencies, the investigators subscribed to certain assumptions about the agencies themselves and the policy context into which guidelines might be inserted. This section describes the assumptions that have served as touchstones in writing the guidelines.

Discussion of Terms

Website. The term "website" defies precise definition. The World Wide Web Federal Consortium (1996, Appendix A) defines a website as: "A collection of information, documents, or databases that is provided to a user community using World Wide Web formats and protocols." For the purposes of these guidelines, the working definition is: *a website is a set of Uniform Resource Locators (URLs) that fall under a single administrative control.* This is an operational rather than analytic definition, used because the research project found no consistent patterns in how websites are administered and named. A state government, for example, may have a single umbrella domain name; within the umbrella domain name, each department of state government may have its own sub-website; major offices, bureaus, or administrations within a department may have sub-sub-sites; and so on, into ever more detailed refinements. And all of this occurs within a single domain name so that the user at least knows that all of the URLs pertain to that particular state. In other cases,

subagencies in federal departments may have unique domain names, so that the user is unable to tell from the URL that the subagency is a component of the larger department. The department's umbrella website simply hyperlinks to the subagency URLs. The point is that the permutations and combinations in website administration appear endless. As long as the organization treats a set of URLs in a unitary fashion, the set is a single website.

Record. The term "record" is used in the realm of archives and records management[11], and the same term is used in the realm of information technology. The two usages have overlapping but dissimilar meanings. In this report, the term record is used in the meaning found within the world of archives and records management. This meaning of record is the definition found in statutes, whether federal or state. For example, the definition of the term under the Federal Records Act is as follows:

> A record consists of information, regardless of medium, detailing the transaction of business. Records include all books, papers, maps, photographs, machine-readable materials, and other documentary materials, regardless of physical form or characteristics, made or received by an Agency of the United States Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that Agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the value of data in the record. *(44 U.S.C. 3301, reference [bb])* [See, for example, <http://www.nara.gov>.]

In order to distinguish between records in the archival/records management sense and records in the information technology sense, the guidelines refer to "official records" (archival/records management) and "computer records" (information technology). Not all computer records are official records, and not all official records are computer records. This point seems so elementary as to approach triteness, yet the confusion between the two senses of the term continually clouded site visits and discussions involving both webmasters and records officers during the course of the project.

Transfer to Recordkeeping System. A recordkeeping system is defined as "a set of policies and procedures for organizing and identifying [official] files or documents to speed their retrieval, use, and disposition" (NARA 1993). State and federal government recordkeeping systems include the important condition that the system must comply with applicable laws and regulations for official records management and archives. When official records occur on agency websites (and are not elsewhere captured in recordkeeping systems), it is absolutely insufficient to say that the agency is keeping computer records of the websites. The reason it is insufficient is because the agency has no way of knowing whether the computer records comply with the conditions laid on official recordkeeping systems. An official recordkeeping system, for example, entails records schedules for authorized disposition of the records. If the reader finds the foregoing discussion confusing, a simple

---

[11]For a fuller discussion and analysis of the term record within the context of records management and archives, refer to Chapter 2, Literature Review.

way to clarify the matter is to examine the rules set forth for software systems under DoD 5015.2-STD, the Department of Defense standard referred to below.

Purpose-Prepared and Interactive Real Time Website Postings. The research project encountered two different kinds of record creation on websites. In one case, the informational material is created by a content creator or manager, usually in a program office and usually in a word processing system. The material is then transmitted to the webmaster who posts the material on the website without change. Here the webmaster performs a purely technical function of transferring electronic information, for example, from an agency intranet message to an Internet website posting, and only the content manager exercises control over the content.[12] This kind of material may be designated as **purpose-prepared website postings**. Here one presumes that responsibility for keeping records of the information form and content of the posting rests with the content manager. That is to say, records management would normally be accomplished **before** the materials are posted to the website.[13]

In the second case, however, the record is created interactively in real time, beyond immediate control of a content manager or records officer. The example below of the public hearing is a case of **interactive real time website postings**. This latter case appears to be a new phenomenon for which traditional records management policies and procedures are inapplicable. The postings are interactive because they involve a back-and-forth between agency officials and members of the public involving questions and response and/or comments and rejoinders that are unrehearsed and unscripted. If the record is being created "on the fly," special measures are necessary to establish a linkage with an agency records system.

While interactive real time postings may be infrequent at the moment, they seem certain to occur more often in the future as agencies discover more innovative ways to serve the public through the Internet. The distinction between purpose-prepared and interactive real time website postings should become clearer from examination of the examples cited in the next section.

Relationship of Website Records Management to Other Policies

Records Management Policies. Some agencies embrace without examination the erroneous assumption that no original official record materials occur on their websites that are not elsewhere captured into recordkeeping systems. Many agencies use disclaimers to state that the information on

---

[12]This discussion deals with relatively pure types. In practice, the research found that, where agencies had not developed quality control procedures, it fell to webmasters to perform editorial functions that improved the overall "look and feel" of the websites.

[13]The website itself, considered as part of an agency's information systems, would also routinely keep records concerning its information technology hardware, software, standard operating procedures, etc. In this sense, the webmaster is the program officer for the website.

their websites is not the "official version."[14] Despite these disclaimers, in-depth interviewing revealed multiple cases where record-quality materials appear uniquely in agency web postings. The reason this is so is because agencies continually explore more innovative uses of their networks and often venture into usage modalities that no one anticipated even a few months ago. Here are some examples where record-quality materials may occur on websites and not be found elsewhere:

- A state agency reported that the official version of a document was still the printed paper version. In fact, the most current, up-to-date, and reliable version was the one on the website. The paper version was out-of-date by the time it appeared. The website version was what all state employees used as their authoritative source.

- Some federal agencies now post public comments on rulemakings on their websites. They accept comments in writing but also via electronic mail, then post the comments on the agency website. These comments qualify as official records; the electronically transmitted comments may not be committed to paper and hence are not captured in a paper-based records system. (Other agencies encourage electronic comments but insist on a paper original to follow later; the reason for the practice appears to be absence of agreement on an electronic signature standard.)

- Both state and federal agencies conduct "town meetings" or other kinds of public hearings via the Internet. Typically, elected or appointed officials respond interactively in real time to questions from the public concerning current events, the proceedings being simultaneously broadcast via television and transmitted over the Internet. In these sessions, agency personnel represent themselves as speaking in their official capacities on matters of public policy. In one case, the session was declared to be an official meeting of the state real estate commission. These website proceedings qualify as official records.

- To complicate matters more, in some of the hearings, speakers hyperlink to other websites and bring in materials from those sites as evidence. Presumably such materials become part of the hearing record in the form and manner in which they are introduced to the agency website.

- In still other cases, the only hearing record, made available from the agency website, is an audio tape recording of the hearing, the agency having no funds to pay for a paper transcript.

---

[14]Whatever its validity in a court of law, when a disclaimer stating a website is nonofficial is followed by screens containing a government agency's official letterhead, its official seal, the names and pictures of the agency head and other senior officials, managers and users are sure to view the disclaimer with skepticism. Note, however, that the World Wide Web Federal Consortium (1996) recommends use of two kinds of disclaimers: disclaimers of liability (limits to agency responsibility) and disclaimers of endorsement (of commercial products and services). See Chapter 2, Literature Review, of the project's final report.

The conclusion drawn from these examples is simple. agency officials must understand that some materials posted on agency Internet websites qualify as official government records and must be transferred into appropriate recordkeeping systems.

- For **federal agencies**, officials should reference the legal and regulatory authorities for official records, such as 44 U.S.C. §31 - Records Management; 44 U.S.C. §33 - Disposal of Records; and 36 CFR Chapter XII, Subch. B, Records Management. These and other materials may be found on the NARA website, <http://www.nara.gov>.

- For **state agencies**, officials should reference the appropriate legal and regulatory authorities, such as the state public records act and companion regulations. State officials should consult the official archives and records management oversight agency for applicable regulations, policies, best practices, and forms. They should consult also with state libraries, institutions that are usually involved in agency websites and/or records management.

Both federal and state agencies must clarify requirements and responsibilities for ERM, both within and external to the individual agency.

Other Policies. Website records management is a subject that has ramifications for and is affected by many other policy areas. In the normal course of business, state and federal agencies likely will have developed policies dealing with these areas. Among the policy areas that touch website records management are policies for:

- Acquisition and use of information technology
- Acquisition and management of software systems
- Management and use of intranets and the Internet
- Use of electronic mail
- Safeguarding the security of government information and property
- Protecting the privacy of individuals
- Appropriate conduct of employees during office hours, including business etiquette (e.g., prohibition of abusive or indecent materials in e-mail messages)
- Producing and controlling official agency publications
- Personal use of government equipment and facilities

Rather than creating *de novo* a policy on privacy, security, Internet usage, etc., the state or federal official is most likely to be in the situation of having to **apply pre-existing policy** on such topics. The pre-existing policies may or may not fall under the individual official's jurisdiction, when he or she addresses website records management. Policy governing acquisition and management of information technology or software systems, for example, may very well be the domain of another official or another agency. Given the great diversity of such policies in the myriad contexts of state and federal agencies, an appropriate response is:

- Find the agency policy on a given topic and apply it to websites as needed.
- If the policy does not exist, take appropriate action to develop it.

Sooner or later, in some form or other, all state and federal agencies must deal with the foregoing policy areas. Hence, in setting boundaries on the scope of the research activities, the "principle of parsimony" dictated that guidelines would **not** be written for policy areas that the agencies would ordinarily cover in the course of other business. For example, the guidelines do not cover basic records management concepts and principles, or general best practices for establishing and maintaining agency home pages and websites.

Electronic Records Management: A Special Case. Agencies wishing to apply the guidelines to their own situations will quickly discover that one area of policy development is especially critical for website records management: electronic records management. At the present writing, the field of ERM policy for state and federal agencies is still new and largely undeveloped. Pioneer efforts are occurring in many places, as this report's literature review indicates, but one cannot yet point to a well settled body of doctrine dealing with how government agencies should manage their electronic records in general, as well as their website records in particular. The research project found that the best predictor of whether an agency has dealt seriously with website records management is whether the agency already has or is in process of developing an ERM policy.

The research project analyzed the seven federal agency records management policies that the investigators were able to locate.[15] For agencies that are just beginning the process of developing their ERM, three examples offer good starting points for adapting the work of others to the mission and needs of an agency.

- **The U.S. Department of Defense**. *DoD 5015.2-STD, Design Criteria Standard for Electronic Records Management Software Applications*. The standard effectively says to DoD components: if components intend to acquire software systems that purport to accomplish federal ERM, those systems must meet the functionality contained in DoD 5015.2-STD. DoD has set up a testing center at Fort Huachuca, Arizona, to test and certify software systems that meet the standard. Details can be found at <http://jitc-emh.army.mil/recmgt/home3.htm>.
- **The U.S. Department of Energy**. To the degree that it blends the paper and system records management models, and by its incorporation of language to deal with complex records, DOE's policy statement is the most developed of the seven reviewed. DOE's policy pays the most attention to reconciling the traditional records life cycle with an electronic recordkeeping system life cycle. The title of the policy is *Electronic Records Management*

---

[15]Refer to Chapter 5 on side-by-side analysis. The seven agencies were: Department of Energy; National Archives and Records Administration; Office of Thrift Supervision, Department of Treasury; Environmental Protection Agency; Department of Defense; Bureau of Land Management, Department of Interior; and Federal Aviation Administration, Department of Transportation.

Guide, and it can be found at <http://cio.doe.gov> (See the section on "Records Management" and then "Publications.").

- **The U.S. Environmental Protection Agency**. The EPA's ERM policy is Chapter 5 of a revision to the agency records management manual, still in process as of January 1998. The draft policy adapts the 1996 NARA draft guidance and the DoD software standard to an EPA agency policy.[16]

Website Administrative Models and Responsibilities

This research has reinforced the obvious facts that state and federal agencies' Internet activities range from the elementary to the highly sophisticated. The state of website development in a given agency is a function of many factors, among which are the following.

- Overall size and organizational complexity of the agency
- Overall size and complexity of the websites in question
- Length of time and amount of resources devoted to website activities
- Technical experience and skills of agency staff
- Level of diversity and sophistication to which the agency's website usage has evolved
- Political, legal, and cultural context in which the agency carries out its mission and programs

Smaller agencies with very specific missions (or smaller components that operate their own websites within larger agencies) tend to have more limited website development. Larger agencies that have complex missions and programs accompanied by correspondingly larger information technology investments and expertise understandably have substantially more resources to devote to their websites. Agencies that have more top-down hierarchical structure, such as the military services, tend to have more formally developed policies and procedures governing website activities. On the one hand, some agencies "live in a fish bowl" of close, continuous scrutiny by their legislature, the courts, the press, and the public, and hence are correspondingly more careful about what appears on their websites. On the other hand, those same agencies tend to have public constituencies that press for release of ever more government information, and hence have more fully mature websites.

Three major areas of responsibility affect website recordkeeping: **webmasters (or website managers), content managers, and records officers**. The three areas of responsibility are distinguished as follows:

- **Webmasters** are those who manage the information technology aspects of websites. They are most frequently found in the information systems offices of agencies engaged in acquiring and managing the agencies' information technology resources.

---

[16]For more information concerning the EPA policy, contact the Agency Records Officer, National Records Management Center, U.S. Environmental Protection Agency, Washington, DC 20460. Sprehe served as a consultant in the development of the EPA policy.

- **Content managers** are those who create and manage the informational content of website postings. They are most frequently found in the program offices of agencies engaged in carrying out the programs that comprise agencies' missions.
- **Records officers** are those charged with carrying out the agency's official records management and archival responsibilities. They see to it that the agency creates, maintains, transfers, and disposes of official records in accordance with applicable laws and regulations.

The functions of developing website content, managing agency records, and managing websites are often lodged in different parts of agency organization, command very different skills, and are carried out by different people. With some exceptions, webmasters are not records officers and records officers are not webmasters. Content managers are most often the subject matter specialists in program offices, and they are neither records officers nor webmasters.

The dimension of time further complicates the picture. Some agencies are just now beginning their website activities, while others have several years of experience. For those just starting out, the generalizations in the previous paragraph often do not hold true; in the beginning, the webmaster frequently discharges all three responsibilities. The webmaster sets up and maintains the servers, designs the home page "look and feel," chooses the contents, decides when postings go up and come down, and, if anyone worries about website records management, it is the webmaster.

The pace of change in ERM and website development is extremely rapid, with new uses being discovered and piloted every day. Table 6.1 summarizes typical evolutionary stages at the time this research was carried out.

Table 6.1. Typical Stages in Website Administration and Responsibilities

WM = webmaster; CM =content manager; RO = records officer

Stages	Administration	Responsibilities
Beginning Stages	• One or a few websites in agency • Few sub-sites exist • Limited uses for websites • Very little original material appearing on websites • Few quality controls for websites • Very little intra-agency coordination of websites • Little interagency communication about website policies/practices	• WM manages all aspects of sites, including content and records management • Official records management undifferentiated from computer records management • Official records management a minor consideration; RO not involved in websitesCM not a set of separately defined responsibilities
More Advanced Stages	• Number of websites in agency multiplies • Multiple sub-sites, sub-sub-sites emerge • Multiple uses of sites emerge, including interactive, real time situations • More original material prepared for agency websites • Quality control over website content becomes an issue • Intra-agency coordination of agency websites developsInter-agency communications keep agency abreast of what other agencies are doing	• WM becomes exclusively technical information technology responsibility • CM emerges as separate responsibility lodged in program offices • RO coordinates websites with agency's official records management program • WM/CM/RO share information, apply records management policies and procedures, develop best practices and guidelines, and transfer record material into recordkeeping systems.

Accountability Exposure Analysis

Inevitably, agencies must cope with **accountability** for their websites. In its fundamental sense, accountability means the ability to reconstruct an accurate picture of the past through records that can be used as evidence.[17] Agencies are accountable in many ways, beginning with their responsibilities to abide by the laws enacted by their legislatures. Accountability in the present context also means the real possibility that agencies will be called to account-- whether in a court of law, in the court of public opinion, before the legislature, or in the court of history--for what appears on their websites. Accountability comes in many forms and shapes as well, from appearing before a hostile legislative committee with television cameras whirring, to answering a court's subpoena, to responding to reference librarians phoning to ask what became of a web posting from six months ago.

---

[17]See the discussion of the concept of accountability in records management in Chapter 2, Literature Review, of the project's final report; also the discussion of liability. In its accounting and bookkeeping sense, accountability means the capability of identifying, measuring, recording, and communicating economic information about an organization or other entity, in order to permit informed judgments by users of the information. (Encarta 97 Encyclopedia 1997)

Accountability is at the heart of archives and records management; the *raison d'etre* of records is accountability. Records management accountability consists of discharging responsibilities to keep records under applicable statutes. Just as with any other business activity, agencies must keep records about their websites to satisfy a range of responsibilities, most notably records management statutes and regulations. Exactly what website records agencies should keep is a matter for debate, study, legal opinion, and senior management decision making within each agency, but the fundamental recordkeeping mandate cannot be in doubt.

A complicating factor is that different websites have different levels of what is here called **"accountability exposure,"** the real likelihood of being called to account and the level of precision and detail the accounting will require.

For each of its websites, an agency should perform an **accountability exposure analysis**; that is, an appraisal of the extent to which the agency is or is not fulfilling its legal and other responsibilities under recordkeeping statutes and other obligations, and the real possibility the agency will be called to account. Depending on the outcome of the analysis, the agency should design appropriate management and recordkeeping responses.

Accountability exposure analysis could be conducted as an informal appraisal carried out by well-informed management, or it could be a more formal exercise. One may think of certain parts of agency organizations as being specifically in the business of accountability. In particular, an agency's **legal counsel** and its **public affairs** office perform the functions of monitoring the agency's accountability vis-a-vis the law and the public, respectively. It is not surprising, then, that, in many of the agencies the research project examined, the legal counsel and public affairs offices play important gatekeeper functions for websites. In DoD, for example, the approval of the Assistant Secretary of Public Affairs is needed in order to establish a website. In agencies frequently the subject of litigation, the legal counsel's offices are particularly sensitive to website content.

Parallels can be drawn between accountability exposure analysis and what is known in other contexts as **risk analysis or risk assessment**. Risk analysis is a set of procedures applied to information systems to determine an appropriate level of security for the systems. In a typical security context, for example, agencies are enjoined to "protect government information commensurate with the risk and magnitude of harm that could result from the loss, misuse, or unauthorized access to or modification of such information " (OMB 1993)[18]

---

[18]Note that there are two aspects to risk analysis: the risk of harm and the magnitude of harm. To illustrate the difference between risk and magnitude of harm: There may be a very small risk that terrorists could smuggle a nuclear device inside the U.S. Capitol building and explode the device; the magnitude of harm resulting from such an eventuality is incalculably great. So, too, with accountability exposure analysis: One must consider both the risk of being called to account and the magnitude of the consequences of being called to account.

The neologism accountability exposure analysis was coined deliberately in order to avoid nomenclature in the realm of information systems security. The kind of accountability under discussion here is much broader than information systems security. Here, accountability includes, for example, political and public relations risks as well as the risk that important materials pertaining to the history of the agency might be lost. As a minor example, the Virginia legislature is called the General Assembly. When a state agency referred to its website as a "Virtual Assembly," the agency attracted unfavorable attention from state legislators.

The key aspects of accountability are the ability to reconstruct what occurred in the past and the exactness of reconstruction that circumstances may demand. Cost of reconstruction is a vitally important factor, but so is the likelihood the reconstruction will be required. It makes no sense to create expensive procedures for reproducing exactly what occurred on a website in the distant past when the agency is never likely to need an exact reproduction.

Accountability Exposure Analysis and Recordkeeping Response

Following this line of reasoning, different levels of accountability exposure demand different levels of recordkeeping response, as the typology illustrated in Table 6.2 suggests.

Table 6.2. Accountability Exposure Analysis and Recordkeeping Response

Low Level of Accountability Exposure	Recordkeeping Response
• Agency has single website containing only copies of official agency publications. • Agency controls who may post to website. • Experience shows agency publications are not controversial. • Publications have never been the subject of litigation and general counsel advises little or no legal risk exists. • Publications generate no unfavorable press reaction, and office of public affairs advises public would be well served by website. • Agency's public constituency appears satisfied with agency information services and urges electronic access via website. • Publications occasion little legislative interest. **Accountability Exposure Analysis:** Little accountability exposure exists.	• Agency keeps adequate records documenting its information systems, standard operating procedures for its website, etc. • Agency has well established procedures for recordkeeping of official agency publications, independent of its website, and these procedures capture publications into recordkeeping systems in both paper and electronic formats. **Records Management Analysis:** Existing recordkeeping responses are satisfactory and no further measures are necessary at this time. Continue periodic review of website to determine whether accountability exposure increases.

Continued. . .

Table 6.2. (cont.)
Accountability Exposure Analysis and Recordkeeping Response

Moderate Level of Accountability Exposure	Recordkeeping Response
• Agency websites grow in number and complexity. • Span-of-control problems grow; many offices now posting to websites. • Quality-control problems grow; e.g., several websites overlap in content but present conflicting information. • Types of website uses multiply; both purpose-prepared and interactive real time materials occur on websites. • Original materials, not elsewhere captured in recordkeeping systems, sometimes appear on websites. • Legal counsel not consulted about potential legal liability of websites. • Public affairs office advises some materials could generate adverse public interest and prove controversial. • Substantial variability in management controls over whether website record-quality materials are transferred into recordkeeping systems. **Accountability Exposure Analysis:** Moderate likelihood that accountability issues will arise.	• Agency already keeping basic website records as specified above under Low Level of Accountability Exposure. **Records Management Analysis:** Agency must take some additional measures to ensure ability to reconstruct past website contents. **Proposed Recordkeeping Response for Moderate Level of Accountability Exposure:** • In addition to above measures, agency also establishes a historical log describing contents of websites. (See below, Guideline B.3.b, for detailed example of historical log.) • Historical log itself is an official record; it is transferred to agency recordkeeping system and brought under records schedule. • Agency posts historical log on website in order to answer public inquiries about past website postings

Continued. . .

Table 6.2. (cont.)
Accountability Exposure Analysis and Recordkeeping Response

High Level of Accountability Exposure	Recordkeeping Response
• Agency websites grow numerous and highly complex, with sub-sites and sub-sub-sites emerging. • Contents of websites include ephemeral "bulletin board" postings, official agency publications, original materials not captured elsewhere in recordkeeping systems, official hearings and other agency business created interactively in real time. • Many different administrative arrangements arise for websites. • Agency operates under intense public scrutiny; its publications (e.g., rulemakings) are controversial. • Legal counsel advises website carries substantial liability for agency. Litigation against agency is frequent and acrimonious. • Press coverage and usage of materials covered in websites is frequent; public interest groups watch agency closely and also often visit websites. Public affairs office advises website could be source of major controversy. • Legislative interest in agency is active and vigilant. • At the same time, public clamors for increasing electronic access to agency information holdings and expansion of website offerings. This condition makes websites practically essential to agency mission. **Accountability Exposure Analysis:** High likelihood that accountability issues will arise.	• Agency keeps basic website records as specified above under Low Level of Accountability Exposure and also historical log or similar response as specified under Moderate Level. **Records Management Analysis:** Agency must take additional measures to ensure precise reconstruction of exact copy of past website contents. **Proposed Recordkeeping Response for High Level of Accountability Exposure:** • Agency takes periodic "snapshots" (electronic copies) of entire websites; agency is capable of reproducing entire site contents exactly as they appeared. • Agency maintains comprehensive index of website contents over time. • Periodicity of snapshots (hourly, daily, weekly, etc.) is frequently reviewed. • Snapshots are official records, transferred to agency recordkeeping system and brought under records schedules.

Guidelines for Website Records Management

State and federal agencies should adapt the guidelines below to their individual circumstances.

Primary Records Management Principle

The primary records management principle for state and federal agency websites is:

When materials are posted to an agency website **and** . . .

the materials qualify as records, **and** . . .

the materials have not already been adequately captured in an agency recordkeeping system, **then** . . .

the agency must take steps to establish a linkage between the website and an agency recordkeeping system and transfer the records into the recordkeeping system.

Website Guidelines: General Information Resources Management

The research project found again and again that lower-level webmasters, who were almost always both innovative and responsible individuals, had taken on general management functions for websites because their senior management had not yet recognized the significance of new Internet applications for agency missions. Certain functions with respect to website management properly fall within the realm of general IRM. That is, they pertain to the responsibilities of an agency's **Chief information Officer**, a senior manager, rather than the responsibilities of webmasters or content managers, who are more likely to be mid-level managers. Policy issues requiring coordination at a senior management level (e.g., with the agency's general counsel and public affairs offices) often need ironing out before mid-level managers can proceed to develop operational procedures. For this reason, the guidelines are split in two: first, general IRM, and second, records management viewed as part of IRM.

A. Information Resources Management Guidelines

A.1. Raise the Level of Education/Awareness Concerning Website Accountability. Agency IRM managers should ensure that management throughout the agency is made aware of both the positive potentialities and negative liabilities that websites offer for mission fulfillment. This includes appropriate reminders about records management statutes and regulations, as well as other policy areas referred to above.

A.2. Conduct Accountability Exposure Analysis for Each Agency Website. Agency managers should see to it that their agencies analyze the accountability exposure of each website, both when the site is established and periodically thereafter.

A.3. Ensure that Records Management Is Included in Agency Accountability Exposure Analysis. Agency managers should familiarize themselves with records management statutes and regulations sufficiently to ensure that records management responsibilities are adequately discharged within agency websites.

A.4. Establish Overall Management and Control Structure for Agency Websites. Agency managers should establish policies and procedures governing who has the authority to create websites, including the conditions under which the agencies' legal counsels and public affairs offices should be consulted.

A.5. Identify Responsibilities for Websites. Agency managers should examine the organization and functioning of their websites to identify the offices and persons functioning as webmasters, content managers, and records officers.

A.6. Establish and Maintain Communications. Agency managers should take steps to ensure that webmasters, content managers, and records officers communicate regularly with one another regarding the agencies' websites.

A.7. Develop Policies and Procedures. Agency managers should see to the specification of the set of responsibilities pertaining to website management and assign the responsibilities to the various offices and persons who will function as webmasters, content managers, and records officers, including the responsibility to coordinate with one another.

- **Access Control.** Establish an official list of who has authority to post materials to websites and permit only persons on that list to undertake postings.

- **Records Management Certification.** Require that those content managers responsible for creating purpose-prepared website materials certify that records management responsibilities have been discharged before materials are posted to websites. Require that records management responsibilities be assigned to appropriate program offices before interactive real-time website events take place.

- **Quality Control.** Assign responsibilities such that all materials posted to websites are reviewed for suitability form and content, including proofreading, conformity to agency stylistic guidelines, official agency thesaurus, etc.

- **Version Control.** Assign responsibilities and develop procedures for controlling versions of important website postings when the postings are known to go through multiple versions.

- **Coordination.** Establish rules and procedures for how the agency's primary website (home page) will relate to sub-sites. For example, whether and how all agency websites will be accessed from the primary site.

- **Agency Style and Controlled Thesaurus.** Establish an agency-wide style for the "look and feel" of websites, including a controlled thesaurus that standardizes the definition of key terms for use on agency websites so that all websites and sub-sites use terminology in a similar manner.

B. Records Management Guidelines

Given an overall IRM regimen for agency website management, certain functions remain that deal just with records management. The guidelines below cover records management aspects of websites.

B.1. Develop or Review Agency Electronic Records Management Policy and Procedures. Agencies should develop an overall ERM policy and associated procedures in order to manage website records, as well as other non-paper records.

- **Coverage**. The policy should include coverage of websites, electronic mail or messaging, word processing files, spreadsheets, databases, optically stored images, audio and video recordings, multimedia files, and other topics of importance to the agency.[19]

- **Training**. Agency training programs should ensure that all employees, but especially those who work in information systems and website-related areas, know how to recognize when materials qualify as records, what to do with records, and when to consult the agency records officer.

B.2. Carry Out Accountability Exposure Analysis for Each Website and Design Appropriate Records Management Response

B.2.a. For each website, the webmaster, content manager, and records officer should jointly determine the site's accountability exposure, seeking advice, where appropriate, from legal counsel and the public affairs office. Websites may be classified as having low, moderate, or high accountability exposure.

B.2.b. The webmaster, content manager, and records officer should jointly determine appropriate recordkeeping responses to low, moderate, and high accountability exposure sites.

B.3. Examples of Different Records Management Responses

B.3.a. Low Accountability Exposure. Existing records management policies and procedures suffice. Continue periodic review of website to determine whether accountability exposure increases.

---

[19]Other topics that may be of importance to some agencies are scientific databases, geographic information systems, voice-mail, and e-FOIA requests.

B.3.b. Moderate Accountability Exposure. In addition to policies and procedures for low accountability exposure, create and maintain an historical log for the website. Suggested data elements to include in the historical log are:

- Title or name of posting
- Version number of posting
- Originating author/office name, address and contact information. This is the content manager, the person/office responsible for content creation
- Hyperlinks in this posting
- Date of initial posting
- Date of last modification
- Date of replacement or withdrawal
- Disposition of posting after replacement or withdrawal. Destroyed? Archived on website? Transferred to recordkeeping system?

The historical log itself is an official record to be transferred to a recordkeeping system. Also post the log on the website so that users interested in long-term availability of postings can find information on past postings.

B.3.c. High Accountability Exposure. In addition to policies and procedures for low and moderate accountability exposure, create procedures for periodically taking an electronic "snapshot" of the entire website. These snapshots are official records to be transferred to a recordkeeping system. A snapshot may be taken as frequently as daily, hourly, or at some other period. Agencies should review frequently the appropriate periodicity of snapshots.

B.4. Establish Records Management Linkages and Transfers. Agencies should ensure that, where record-quality materials occur on websites, linkages have been established to agency recordkeeping systems and the automatic transfer of records to recordkeeping systems actually occurs.

B.5. Assign Records Management Responsibilities for Purpose-Prepared and Interactive Real time Website Postings.

B.5.a. Purpose-Prepared Materials. For materials prepared in advance for website posting, the agency should establish procedures for capturing records of the materials and transferring them to recordkeeping systems.

- **Content Managers:** For materials that are purpose-prepared for website posting, the content manager responsible for preparing the materials should also discharge responsibility for

keeping the record of the materials and ensuring that the record is transferred into a recordkeeping system either before or after website posting.

- **Webmasters**: Webmasters should ensure that they are following established records management procedures for purpose-prepared materials.
- **Records Officer**. Records officers should participate in development of procedures for purpose-prepared materials and confirm that content managers and webmasters are following the procedures.

B.5.b. Interactive Real time Materials. For materials that appear on agency websites as a result of an interactive real time event, agencies should assign responsibilities, **preferably in advance of the event's occurrence**, specifying how the materials will be assessed from a recordkeeping standpoint, which program office has recordkeeping responsibility for the materials, and how resulting records will be transferred to agency recordkeeping systems, and establishing follow-up review to ensure that transfers actually occur.

- **Webmasters**. Webmasters should consult with content managers and records officers to determine whether the materials qualify as records, which program office has responsibility for the content of the materials, and how records will be transmitted to a content manager in a program office for transfer to an agency recordkeeping system. The webmaster should then transfer the materials in accordance with the determination.
- **Content Managers**. Content managers should consult with webmasters and records officers to determine whether the materials qualify as records, which content managers' office has program responsibility for the content of the materials, and how records will be transmitted to the appropriate content manager's program office for transfer to an agency recordkeeping system.
- **Records Officer.** Records officers should determine, in advance if possible, whether a given website interactive real time occurrence is likely to produce or has already produced record-quality materials. If record-quality materials are produced, records officers should ensure that webmasters and content managers follow established records transfer procedures and that an agency recordkeeping system in fact receives the records.

Improving Records Management on State and Federal Agency Websites

Next Steps and Open Issues

The guidelines propose a number of ideas and approaches for managing electronic records on state and federal websites. The research suggests answers to some questions but also raises new issues perhaps not previously encountered. The investigators believe the following issues are particularly important.

Awareness of the Importance of ERM on Websites. A number of state and federal agencies contacted by the study team showed little awareness of the possibility that records occur on agency websites, let alone their implications. For some, the idea that official records were on their websites and thus, fell within records management programs had not been considered. The research demonstrates a significant need for increasing the awareness of state and federal officials as to the importance of managing electronic records on government websites.

Raising awareness may require a range of educational programs in each agency. It will also require leadership from key agencies such as NARA at the federal level as well as state archivists and records managers at the state level. The importance of developing strategies, guidelines, and policies for ERM in state and federal websites will only continue to increase in the future as more records are available **only** in electronic format, and **only** on websites.

State/Federal Coordination of ERM Policies. While are many differences certainly exist between the needs of state versus federal agencies with respect to ERM of websites, this research identified more similarities in terms of issues, practices, and concerns. Better sharing of information, policies, practices and lessons learned needs to occur between the state and federal officials that deal with ERM in general, and particularly those dealing with ERM on websites. Development of a national clearinghouse to exchange and manage such information would greatly assist in the development of ERM on websites. Such an effort would in itself increase awareness of the importance of ERM issues related to state and federal websites.

Website Records Schedules. The guidelines call for transferring record-quality website materials to recordkeeping systems, an imperative that means bringing the materials under records schedules. Few state and federal agencies are likely to have applicable records schedules for records occurring on websites. Hence, an effort to adapt the guidelines to agency circumstances will probably require preparing new or revised schedules for records on web sites, work that should ideally be on the series or file unit level for all material on the web site. If an agency has, say, ten separate records series posted on its website, then it will need ten distinct records schedules (or schedule items) to address the web version of the records.

Websites as Publications? In various meetings and conversations during the conduct of the research, some of which involved NARA staff, the study team learned that, as a rule of thumb, federal agency publications are considered to be permanent records. This rule of thumb would have serious consequences if it were decided that agency websites are official publications, because it would seem to mean that websites must be preserved as permanent records. The procedural and cost considerations would quickly become prohibitive. At present, no statutory definition of an official federal publication exists, except for the definition in Chapter 19, Title 44, U.S. Code, which defines publication only as it pertains to federal depository libraries. Hence, the question of websites as official publications remains an open issue at the federal level. The presence of this issue only emphasizes the need for website ERM guidelines.

The Medium and the Message. Finally, the guidelines leave open important issues of records management philosophy. As an example, the discussion here stipulates that, for purpose-prepared website postings, records management responsibility rests with the content manager who prepared the posting, perhaps on a word processing system connected to an intranet. When the posting is transmitted to the public via the Internet, it is an open question as to whether the form and manner in which the information is disseminated (the website) becomes as important as the content itself. The content manager may have transferred the posting's contents to an ERM system, but does and should the ERM system include, as a matter of record, the fact that the contents were disseminated via a website?

The guidelines also leave untouched entirely new areas of records management such as what to do about multimedia and hyperlinks within website postings. In what sense are hyperlinks within a posting an integral part of the posting for records purposes? How should records managers treat textual postings that include audio and video links?

Conclusion

The proposed guidelines represent a first step in developing both principles and practical approaches for developing and improving records management of state and federal agency websites. The authors recognize that a number of factors will affect the development and use of these guidelines:

- Webmasters and content managers regularly implement new innovations for websites and develop new applications in what has come to be known as "electronic government."

- The state of ERM practice is improving, and records managers are learning and experimenting with new techniques to better manage state and federal agency websites.

- Policymakers at both the state and federal level increasingly recognize the importance of developing clear policies to guide both the management and the preservation of electronic records on websites. But that policy environment is rapidly changing. Witness the October 1997 court decision in *Public Citizen v John Carlin* (1997) requiring significant policy changes at the federal level for managing electronic records.

- Advances in information technology applications, especially in imaging, retrieval, and networking, will continue to affect the context in which ERM evolves.

- Political realities of what should, can, and will be done in a particular agency regarding ERM affect policies and procedures, These political realities also must be taken into consideration in the development of ERM.

- Situational factors unique to the agency or organization--such as its legal mandate or the type of records it manages--within the state and federal setting will also affect the manner in which ERM of websites occur.

These guidelines offer a beginning point for record managers, webmasters, policymakers, and others to develop principles, policies, and practices to better manage records on websites within their agency contexts. Multiple individuals have responsibilities related to records management of state and federal agency websites. Coordination of these responsibilities is critical for the success of any ERM process, and coordination begins with communications. In many instances, mid-level records officers, content managers and webmasters need to increase the awareness of senior management regarding these issues before policies and procedures can be developed. Website ERM appears to be an arena in which the rank and file must educate senior leadership. Discussion of these guidelines within an agency can provide a useful catalyst for increasing awareness and devising procedures for dealing with ERM issues.

This research found knowledge gaps, confusion, and conflicting views on how best to implement programs of ERM for websites, if indeed agencies have thought about them at all. When the study team conducted site visits in expectation of learning how agencies had coped with website ERM issues, the team often found that the agencies had never thought about the issues before. In that sense, the research was "ahead of its time," and perhaps its principal benefit will be to raise awareness of, rather than resolve, the issues.

Best practices in website ERM are changing daily. Doubtless the situation in state and federal agencies is now substantially different from what the research project found less than twelve months ago. Clearly, additional research is needed in this area to monitor evolving policies and practices. Especially needed will be studies that evaluate the success of ERM programs in terms of cost, public access, accountability, ease of use, and other measures.

Finally, these guidelines will evolve and be revised in light of the changing environment in which ERM occurs. The authors welcome comments and suggestions and expect to profit from suggestions to provide a revised and updated version of these guidelines during 1998. Issues related to ERM will only increase in importance, so that continued development of guidelines such as those offered in this research is essential.

REFERENCES

Barry, R. E. 1994. Electronic document and records management systems: Towards a methodology for requirements definition. *Information Management & Technology* 27 (6), 251-56.

Burner, M. 1997. Crawling towards eternity: Building an archive of the World Wide Web. [Online]. Available: <http://www.webtechniques.com/ features/ 1997/ 05/ burner/ burner.html> (Accessed 6/19/97).

Center for Technology in Government. 1997. Draft: Functional requirements to ensure the creation, maintenance, and preservation of electronic records.

Connecticut, State of, State Home Page Advisory Committee. 1997. State Home Page Project administrative policy. (March). [Online]. Available at <http://www.state.ct.us/shpac>.

Cook, T. 1995. It's 10 O'clock: Do You Know Where Your Data Are? *Technology Review* 98, 48-53.

Cox, R. J. 1994. Archivists, archival institutions, and electronic records: Problems, challenges, opportunities and needs for additional research. *Primary Sources & Original Works* 3 (3/4), 189-99.

Cox, R.J. 1996. Re-defining electronic records management. Records Management Quarterly, 38(4), 8, 10-13.

Dawes, Sharon S., et al. 1996. Developing and delivering government services on the World Wide Web: Recommended practices for New York State. Center for Technology in Government, State University of New York at Albany (September), 57-61. [Online]. Available at <www.ctg.albany.edu>.

Delaware, State of, Office of Information Services. 1997). State information transport network acceptable use policy. [Online]. Available at <http://www.otm.state.de.us/>.

DiCaterino, Ann, and Theresa Pardo. 1996. The World Wide Web as a universal interface to government services. CTG Final Project Report 96-2 (December). [Online]. Available at <www.ctg.albany.edu>.

Du Rea, M. V., and J. M. Pemberton. 1996. Electronic mail and electronic data interchange: Challenges to records management. *Records Management Quarterly*, 3-12, 59.

Emerson, C. 1993, Summer. Facing the challenge of vital records recovery. Information Systems Security, 2(2), 12-23.

Erlandsson, A. 1996, April. Electronic records management: A literature review. [Online]. Available: <http://www.archives.ca/ica/english. html#committees> (Accessed 5/27/97).

Florida, State of, Office of the General Counsel, Department of State. 1997. Department of State e-mail opinion. [Online]. Available at <http://www.dos.state.fl.us/dlis/barm/ email.htm>.

Gauder, B. & Wagner, L. 1997, March/April. Preservation resources projects enrich OCLC's electronic archive initiative. OCLC Newsletter, 226, 23-34.

Gellman, R. 1996. Privacy. In Hernon, P., McClure, C.R., and Relyea, H.C. (Eds.), Federal Informaiton Policies in the 1990: Views and perspectives (pp. 137-163). Norwood, NJ: Ablex Publishing Corporation.

Harreld, H. 1997, March 3. DoD crafts rules for electronic records. Federal Computer Week, 11(5), 1 and 44.

Hedstrom, M. 1997. Electronic records research issues: A summary of recent research. Electronic records research and development: Final Report of the 1996 Ann Arbor conference. (pp. 27-37). Ann Arbor, MI: NHPRC.

Hedstrom, M, and Blouin, F.X., Jr. 1997. Final Report. Electronic records research and development: Final report of the 1996 Ann Arbor conference. (pp.1-18). Ann Arbor, MI: NHPRC.

Hernon, P. 1994. Information life cycle: Its place in the management of U.S. government information resources. Government Information Quarterly, 11(2), 143-170.

Hernon, P., McClure, C.R. and Relyea, H. (Eds.). 1996. Federal information policies in the 1990s: Views and perspectives. Norwood, NJ: Ablex Publishing Corporation.

International Council on Archives (ICA), Committee on Electronic Records. 1996, June). Guide for managing electronic records from an archival perspective: Consultation draft. [Online]. Available: <http://www.archives.ca/ica/ english.html#committees> (Accessed 5/27/97).

Kowlowitz, A. and Kelly, K. 1997, June/July. Models for action: Developing practical approaches to electronic records management and preservation. Bulleting of the American Society for Information Science. p. 20-21.

Library Programs Service, Electronic Transition Staff. 1997. Memorandum of understanding between the U.S. Government Printing Office, the U.S. Department of State, and the Richard J.

Daley Library, University of Illinois at Chicago. Washington, DC: U.S. Government Printing Office. [Fax received by Charles McClure from Duncan M. Aldrich on 5/7/97.]

Locy, T. 1997, February 11. IRS's record-keeping found lacking. The Washington Post, A19.

Louisiana, State of, Office of Planning and Budget. 1997. Info Louisiana-Frequently asked questions. [Online]. Available at <http://state.la.us/state/topics/infola.htm>.

Maine, State of, Information Services Policy Board. 1996. Internet policy and use statement of principles. [Online]. Available at <http://www.state.me.us/ispb/interpol.htm>.

Maine, State of, Maine State Archives. 1997. Electronic and voice mail: A management guide for Maine state government. (February). [Online]. Available at <:http://www.

McGovern, N., et al. (1993). National Archives: U.S. National Archives and Records Administration. Bulletin of the American Society for Information Science, 20(1), 9-26.<state.me.us/sos/arc/general/admin/email.html>.

Menkus, B. 1996. Defining electronic records management. *Records Management Quarterly* 30, 38-41.

Missouri, State of, Office of Administration. 1996. World Wide Web policy. (March). [Online]. Available at <http://www.state.mo.us/oa/dpt/guide/policy.htm>.

Moen, W. E. and McClure, C.R. 1997, June 30. An Evaluation of the Federal Government's Implementation of the Government Information Locator Service (GILS): Final Report. Washington, DC. Government Printing Office.

Motz, A. A., CRM. 1996, October. Why the Internet? Records Management Quarterly, 30(4), 21-25.

National Archives and Records Administration, 1990 *Managing Electronic Records.* Washington, D.C.: NARA.

National Archives and Records Administration. 1995a. Agency recordkeeping requirements: A management guide. College Park, MD: Office of Records Administration.

National Archives and Records Administration. 1995b, August 28. 36 CFR Parts 1220, 1222, 1228, and 1234, Electronic Mail Systems. Federal Register, 60(166), 44634-44642. Washington, DC: Government Printing Office.

National Archives and Records Administration. 1992. Disposition of federal records: A records management handbook. Washington, DC: Office of Records Administration.

National Archives and Records Administration. 1996. Draft: Records management requirements for electronic recordkeeping. Washington, DC: Office of Records Administration.

National Archives and Records Administration. 1993. A federal records management glossary (2nd ed.). Washington, DC: Office of Records Administration.

National Archives and Records Administration. A Federal Records Management Glossary. 1993. Washington, DC: Office of Records Administration.

National Archives and Records Administration (NHPRC). 1990. Managing electronic records. Washington, DC: Office of Records Administration.

National Historical Publications and Records Commission. 1991. Research Issues in Electronic Records: Report of the Working Meeting. St. Paul, MN: Minnesota Historical Society, St. Paul, for the National Historical Publications and Records Commission, Washington, DC.

New Jersey, State of, Office of Telecommunications and Information Systems. 1996a. Circular Letter 97-01-OTS Internet Presence Policy for New Jersey Government. (March). [Online]. Available at <http://www.state.nj.us/infobank/circular/ cir9701s.htm>.

New Jersey, State of, Office of Telecommunications and Information Systems. 1996b. Circular Letter 97-03-OTS Guidelines for Acceptable Internet Access and Use for New Jersey Government. (March). [Online]. Available at <http://www.state.nj.us/infobank/ circular/cir9703s.htm>.

Noonan, Dana. State government websites. Piper Resources. [Online]. Available at <http://www.piperinfo.com/~piper/state/states.html>.

North Carolina, State of, Information Resource Management Commission. 1996. Use of the North Carolina Integrated Information Network and the Internet. (September). [Online]. Available at <http://www.state.nc.us/IRMC/documents/approvals/nciin.html>.

North Carolina, State of, Information Resource Management Commission. Policy and guidelines on the use of the Internet. [Online]. Available at <http://www.state.nc.us/ RMC/documents/approvals/nciin.html>.

North Dakota, State of, Information Resource Center. 1996. Information link to technology: A source of information for our customers 96, no. 3 (July). [Online]. Available at <http://www.state.nd.us/isd/newsletter/july96.html>.

OCLC, 1997, March/April. JSTOR and OCLC agree to cooperate in providing access to and storage of scholarly journals.OCLC Newsletter, 226, 24.

Office of Management and Budget. 1994. Management of Federal Information Resources: Revision of Circular A-130.

Ohio, State of, Department of Administrative Services. 1996. Policy No. OPP-022. Internet, electronic mail and online services use and abuse. (January). [Online]. Available at <http://www.ohio.gov>.

O'Shea, G. 1996, March. Keeping electronic records: Issues and strategies. Provenance: The Electronic Magazine, 1(2). [Online serial]. Available: <http://www.intergate.bc.ca/netpac/provenance/vol1/no2/features/erecs1a.htm> (Accessed 5/21/97).

Pember, M. E. 1996, April. Information disaster planning: An integral component of corporate risk management. Records Management Quarterly, 30(2), 31-37.

Phillips, J. T., Jr., CRM. 1995, July. Internet publishing - A tangled web? Records Management Quarterly, 29(3), 38-42.

Phillips, J. T., Jr., CRM. 1994, July. The National Information Infrastructure. Records Management Quarterly, 28(3), 48-51.

Public Citizen v. John Carlin. October, 1997. Available: <http://www.citizen.org/public_citizen/litigation/briefs/friedopn.htm>.

Public Recordkeeping Research Group, Edith Cowan University. 1996, December. Electronic recordkeeping in western Australian public sector agencies: An assessment. Provenance: The Web Magazine, 2, (1). [Online serial]. Available: <http://www.netpac.com/provenance/vol2/no1/feature/ergprov.htm > (Accessed 5/21/97).

Ruling means agencies need plan for wiping electronic documents. (November 10, 1997). Government Computer News. 1, 6.

Ryan, Joe. 1996. *Guide to Government Information Available on the Internet*, Syracuse, NY: Ryan Information Management Services.

Schorr, H. & Stolfo, S.J. (1997). Towards the digital government of the 21st centrury: A report from the workshop on research and development opportuniites in federal information services. [Online]. Available: <http://www.isi.edu/nsf/prop.html> (Accessed 6/26/97).

Schneider, Dan. 1966, May 15. Report to the Integrated Services Panel: Agency Internet Related "Policies" Offered for Review, Washington, DC, U.S. Department of Justice.

Schwartz, A. (1997, August 25). OMB Watch Press release. [Email message received 8/27/97 by Charles R. McClure from Jerry Sheehan.]

South Carolina, State of, State Budget and Control Board, Office of Information Resources. 1995. World Wide Web state home page policy. (December). [Online]. Available at <http://www.state.sc.us/nis_itg/hmpg_policy.html>.

South Dakota, State of. 1995. Computer policies for the State of South Dakota. (April). [Online]. Available at <http://www.state.sd.us/state/executive/bit/is/document/ internet.htm>.

Sprehe, J.T. 1997a, July 14. Agencies' email policy: Oldwine in a new bottle. Federal Computer Week, 20.

Sprehe, J. T. 1997b, February. Federal agency websites and electronic records management. Washington, DC: Sprehe Information Management Associates, Inc.

Sprehe, J. T. 1997c, April 17. Federal records management needs electronic component. Federal Computer Week, 10 and 17.

Sprehe, J.T. 1994. U.S. Office of Management and Budget Circular No. A-130: Old and new. Journal of Government Information, 21(3), 231-247.

Standards Australia. 1996. Draft International Standard: Australian Standard. Received from NARA/John W. Carlin (2/11/97).

Stephens, D. O., and D. Roberts. 1996. From Australia: The world's first national standard for records management. *Records Management Quarterly*, 3-13.

Stratford, J. S., and J. Stratford. 1996. Computerized and networked government information. *Journal of Government Information* 23 (5/6), 749-54.

Tennessee, State of, Office for Information Resources. 1997. State of Tennessee World Wide Web guidelines. (January). [Online]. Available at <http://www.state.tn.us/finance/oir/wwwgdln.html#policy>.

Terry, J. 1997, March/April. Electronic archiving: OCLC begins electronic archiving pilot project. OCLC Newsletter, 226, 21-22.

Texas, State of, Texas State Library and Archives Commission. 1997. Title 13. Cultural Resources, Part I. Texas State Library and Archives Commission, Chapter 6. State Records of the Texas Administrative Code. (March). [Online]. Available at <http://sos.state.tx.us/tac/13/I/6/index.html>.

Thibodeau, K. 1996. Managing archival records in the electronic age: Fundamental challenges. In *Federal Information Policies in the 1990s: Views and Perspectives.* Edited by P. Hernon, C. R. McClure, and H. C. Relyea. Norwood, N.J.: Ablex Publishing Corporation.

Thompson, Joe M. 1997, November. Government Technology, cover page.

University of Pittsburgh School of Library and Information Sciences. 1997, June/July. Functional requirements for evidence in recordkeeping. Bulletin of the American Society for Information Science. 10-11.

Varon, E. 1997, March 31. NARA records executive tackles archiving in the digital age. Federal Computer Week, 24 and 28.

Ward, S. W., and B. A. Cole. 1995. Selecting record media. *Records Management Quarterly,* 3-5.

Wire, R.A. 1992. Disposition of federal records: A records management handbook. Washington, DC: National Archives and Records Administration, Office of Records Administration.

World Wide Web Federal Consortium. 1996, November. World Wide Web home page guidelines and best practices. [Online]. Available: <http://www.dtic.mil/staff/cthomps/ guidelines>.

APPENDIX A

SITE VISIT PROBES

EXHIBIT 1	**TOPIC GUIDE FOR FOCUS GROUP COMMONWEALTH OF VIRGINIA**
EXHIBIT 2	**TOPICS FOR DISCUSSION DEPARTMENT OF TREASURY**
EXHIBIT 3	**SITE VISIT PROBES NAGARA**

EXHIBIT 1

June 24, 1997 NHPRC Project

TOPIC GUIDE FOR FOCUS GROUP
COMMONWEALTH OF VIRGINIA

1 Internet. Please describe the situation with regard to Internet access for state government agencies and employees.

2. Websites. Please describe what home pages or websites the Commonwealth has.
   - How are they organized?
   - Does any overall policy govern agency websites
   - Do individual agencies have policies?

3. Records management. Please describe the nature and organization of the Commonwealth's records management program.

4. Electronic records management. Please describe the state of electronic records management in the Commonwealth. Do you do any electronic records management?

5. Website Records Management. Have you given any thought, or are there any initiatives, to the records management aspects of websites? What are your ideas about this?

   - Original materials? Now? In the future?
   - Accountability? Have there been any embarassments? Near misses? Court cases?
   - What do you advise people when they ask?

EXHIBIT 2

Charles R. McClure
J. Timothy Sprehe
Department of Treasury Site Visit
September 18, 1997

TOPICS FOR DISCUSSION

The following probes have been developed from previous data collection activities related to the project. Also attached is a participant survey to be filled out by those interviewed during the site visits, and participants at any of the focus groups. Topics are divided into a number of specific areas. Although it is unlikely that the researchers will be able to address all the various points listed below, they suggest a flavor of the topics to be explored.

Topic 1: Developing Electronic Records Management Guidelines and Policies

- What led your agency to begin establishing electronic records management guidelines and/or policies?
- What factors determined those guidelines and policies?
- Did you model your guidelines and policies off existing ones (federal)?
- Do you have guidelines or policies in place or in draft?

Topic 2: Responsibility

- Who is ultimately responsible for the development of electronic records management guidelines and policies?
- Who did you decide would be responsible for developing electronic records management guidelines and policies?
- What areas of responsibility and authority do you feel this individual should have?

Topic 3: Creation of Electronic Records

- What criteria did you use, if any, in determining what constitutes an electronic record?
- Are there certain records which you decided should not be made available electronically?
- Under what circumstances do the postings on your website(s) qualify as official records?
- Did you develop any criteria for determining which records are considered public records and therefore need to be managed appropriately?

Topic 4: Disclaimers

- Do you use any type of disclaimers on your electronic records? Examples?
- How did you determine what type of disclaimers to use?
- Are there certain documents that you use disclaimers with and others that you do not?
- How did you determine which documents needed disclaimers?

Topic 5: Privacy

- How do you address the issue of privacy in your records management policies or on your websites?
  - Are you concerned about privacy issues in relation to electronic records management?

Topic 6: Security

- How do you deal with security issues pertaining to electronic records on your websites?
  - Are you concerned about the security of your electronic records?
  - Do you have any policies which deal specifically with breach of security in relation to electronic records and those, more specifically, on your websites?

Topic 7: User Evaluation

- Do you know who your users of your website are?
- Do you have any mechanisms in place to identify who these users are?
- Do you currently maintain any web log files?
- If so, do you use these log files to determine who you users are and how you might better serve them?
- What do you consider to be the most important aspect about the users of your website?
- Do you include an e-mail link on your documents for user feedback?

Topic 8: Authenticity

- How do you ensure that users of your websites will find the information authentic?
- Are there any steps you undergo to insure that the records you post on your website are authentic and will remain as such?
- Do you include a statement of responsibility on your documents such as "maintained by" and/or "date last updated?"

Topic 9: Training and Education

- Are you involved in any training of agency/department employees regarding electronic records maintenance and use?

- What is your agency doing to promote the importance of electronic records management of websites to its employees?
- Do you conduct or attend any workshops or trainings regarding electronic records management in general and of websites in particular?

- What are the issues pertaining to electronic records management which you feel require the most training and sensitivity?

Topic 10: Maintenance and Use

- What steps are you taking to ensure that website records as evidence of agency actions and transactions are not being altered during the course of use and preservation?
- Are your guidelines for managing electronic records on a website flexible enough to be useful in all types of website environments?
- How do you go about keeping pace with technological advances and the evolving Internet?
- How do you determine when you should update the records on your websites?

Topic 11: Records Disposition

- Do you have in place procedures for removing website records that are no longer active?
  - How do you maintain historical records of what has been previously posted on your websites?
  - What steps are you taking to incorporate disposition of electronic website records as early in the life cycle as possible?
  - Do you have any guidelines which deal with the scheduling of electronic records on the website(s)?
  - Are there any changes in a website document which may constitute an update in its scheduling?
- How do you go about describing the content or composition of your website records for scheduling and disposition purposes?
  - Are you taking any steps to incorporate appraisal and retention functionalities into the design of website information systems supporting records creation and use applications?

Topic 12: Preservation

- Are you taking any steps to ensure preservation of your electronic records on your website(s)?
- In what format are you preserving your such records?
- Are you concerned with migration?
- Do you feel it is necessary for federal agencies to have weekly or daily snapshots of their websites?
- How do you maintain the readability of electronic website records over time as software and operating systems become obsolescent?

Topic 13: Liability

- How do you go about preserving records on your website for faithful reproduction in court if called upon to do so in the future?
- What attributes of website records are essential to preserve for liability purposes?
- Do you have any policies in place which deal with the retention and disposition of records to protect against liability issues?

Topic 14: Feasibility/Costs

- Who is in charge of managing the costs of electronic records management on your agency's websites? What cost are involved in creating and storing these electronic records?
- Was cost a factor in determining which records to place on the website?
- Are costs a factor in the creation and storage of electronic records on your website?

Topic 15: Accessibility

- What steps are you taking to ensure that electronic website records no longer in active use can still be accessed?
- Do any of your websites function as an formal information repository for inactive records?

Topic 16: Accountability - The Ability to Reconstruct the Past

- Do any activities occur on your website(s) that constitute official Departmental or agency business?
- Are there any procedures in place to protect against the likelihood of having to reconstruct with precision what was displayed on your website(s) at a given moment in time?
- Do you maintain a historical log of what has been posted on your websites in the past? When added, and when deleted or removed?

Topic 17: Policy Issues

- Who are the key individuals in the development of policies pertaining to electronic records related to your departmental/agency website?
- To what degree is Federal legislation or Executive regulations affecting electronic records management of websites?
- Are you taking any actions to ensure compliance with particular government policies relating to electronic records management?
- What policies have helped or hindered the development of your electronic records management guidelines -- and especially those affecting your website?
- What policies would you like to see in place regarding electronic records management of websites?

Topic 18: Lessons Learned and Future Directions

- What do you feel are critical factors leading to the success of electronic records management on Federal websites?
- What do you feel are the key issues relating to electronic records management of Federal websites?
- What are the most critical problems you have encountered in trying to develop and maintain electronic records management of websites?

- What are the next steps for you/your agency/department in regards to electronic records management of websites?

EXHIBIT 3

July 8, 1997

SITE VISIT PROBES
NAGARA Focus Group

The investigators developed the probes listed below as an aid while conducting a focus group at the July 1997 meeting of NAGARA in Sacramento, CA. They derived the probes from findings of the Phase I report and from their experience with three state site visits: Connecticut, New York, and Virginia.

Topic 1: Developing Electronic Records Management Guidelines and Policies

- Have your states developed electronic records management (ERM) guidelines or policies?
- What led you to begin establishing ERM guidelines/policies?
- Did you model your guidelines/policies off existing ones from another state or federal agency?
- What did you consider the most important issues in creating such policies?
- What were you trying to achieve by developing ERM policies?

Topic 2: Internet and Email

- Do your states have any policies governing use of the Internet? What topics do such policies cover?
- Do your states have any policies governing the use of electronic mail? What topics do such policies cover?
- Are there any established linkages in your states between Internet and email, on the one hand, and recordkeeping systems, on the other?

Topic 3: State Website (Home Page) Management

- How are state agency websites organized in your state?
- Are state agency websites coordinated or controlled in any centralized manner?
- What kinds of backgrounds do webmasters come from?
- Is there any regular communication or coordination among webmasters?
- Are there established relationships and communications between webmasters and records managers/archivists?
- Are there any linkages in your states between websites and recordkeeping systems?

Topic 4: Original Records on State Websites

- Do you think your state agencies have any original materials on their that could be considered official records?
- Do you have any guidelines or policies about whether state agencies may post original materials to websites?
- What records management steps do you expect agencies to take if they have original record materials on their websites?

Topic 5: Accountability

- Do your state agencies keep any kind of historical log as to what has been posted on their websites?
- Have any postings on websites caused public embarassment or controversies that have caused top state officials to be concerned about their state agencies' websites? What has been the outcome of these incidents?

APPENDIX B

SITE VISIT PARTICIPATION FORMS

EXHIBIT 1	**ASSESSMENT OF KEY ISSUES RELATED TO RECORDS MANAGEMENT AND FEDERAL WEB SITES: FEDERAL WEBMASTERS FORUM**
EXHIBIT 2	**SITE VISIT PARTICIPANT SURVEY: DEPARTMENT OF HEALTH AND HUMAN SERVICES**

EXHIBIT 1

May 19, 1997

ASSESSMENT OF KEY ISSUES RELATED TO RECORDS MANAGEMENT AND FEDERAL WEB SITES

PART I: Background Information

6. Which of the following best describes the SETTING in which you work:
   ( ) Federal agency ( ) Private for-profit org.
   ( ) Private nonprofit org. ( ) Other_____

7. Years of experience in this setting? _____

8. Which one category best describes the FIELD in which you work?
   ( ) Webmaster ( ) Research & Development
   ( ) Records management ( ) Software development
   ( ) Program/Project Mgmt. ( ) Procurement/Contracting
   ( ) Computer Systems ( ) Library/Information Center
   ( ) Public Information ( ) General IRM
   ( ) Other_____

9. Which one category best describes your INVOLVEMENT WITH or INTEREST IN agency web sites?
   ( ) Implementor of web site ( ) Web site designer
   ( ) Web site records creator ( ) User of web site
   ( ) Technical stds developer ( ) Web site policy maker
   ( ) Other_____

10. How familiar are you with the following (circle the appropriate number):

		Very Familiar				Not Familiar
a.	Fed. Webmaster Consortium's *World Wide Web Homepage Guidelines and Best Practices*	1	2	3	4	5
b.	Federal records management regulations in general	1	2	3	4	5
c.	Federal records requirements for electronic records	1	2	3	4	5
d.	Draft OMB policy guidance for federal agency web sites	1	2	3	4	5
e.	Paperwork Reduction Act of 1995	1	2	3	4	5

PART II: Key Issues concerning Web sites and Federal Information Policy

Please circle TRUE or FALSE for the following:

	TRUE	FALSE	DON'T KNOW.
6. My agency has an electronic mail policy that instructs employees regarding the federal records aspects of email.			

7. My agency keeps an historical record or log of all agency web site postings for purposes of accountability.	TRUE	FALSE	D.K.
8. When web site postings are only copies of materials published elsewhere by the agency, we assume the record copy is kept elsewhere as part of agency publications procedures.	TRUE	FALSE	D.K.
9. If the postings are original materials, we have provisions for determining their federal record status and retention schedule.	TRUE	FALSE	D.K.
10. My agency has a written policy covering recoreds management on web sites.	TRUE	FALSE	D.K.
11. Where my agency is accumulating email addresses into a database with intent of future database use, the agency has published a notice of Privacy Act system of records for the database.	TRUE	FALSE	D.K.
12. Where my agency is accumulating cookies and site visitor information, the agency has notified the public it is doing so and what uses it is making of the information.	TRUE	FALSE	D.K.
13. My agency has an Internet policy that instructs employees regarding the proper use of the Internet for official business, including web site design and management.	TRUE	FALSE	D.K.

Please circle the number that corresponds with the degree to which you agree or disagree with the following statements.

	STRONGLY AGREE				STRONGLY DISAGREE	DON'T KNOW
14. Agency web sites are an increasingly important vehicle for communicating the agency's mission and programs.	1	2	3	4	5	DK
15. Materials posted on agency web sites are essentially boilerplate or ephemeral and federal records considerations are therefore negligible.	1	2	3	4	5	DK
16. Agencies already have adequate guidance on the policy aspects of their web sites.	1	2	3	4	5	DK

17. Agency web sites should be integrated with what the agency is doing on the Government Information Locator Service.	1	2	3	4	5	DK
18. Agency web sites should eventually become repositories for all current agency publications.	1	2	3	4	5	DK

19. In your judgment, what is the most important single issue affecting records management on your agency's web sites?

Thank you for sharing your views with us!

EXHIBIT 2

Department of Health and Human Services
Site Visit Participant Survey

1. Name: _____

2. E-mail address: _____

3. Position Title: _____

4. Years working at this position? _____ 4a. Years in Federal Government? _____

5. Please describe your basic duties in this position -- especially those related to electronic records management?

6. Years working in the area of records management _____ electronic records management _____

7. Have you ever taken any records management classes or attended any training in the area of records management? If yes, please give name of class or type of training.

8. In your present position, please indicate how important you feel the following issues are to the successful management of electronic records on websites?

		Very Important			Not Important	
A.	Authenticity	1	2	3	4	5
B.	Accountability	1	2	3	4	5
C.	Responsibility	1	2	3	4	5
D.	Privacy	1	2	3	4	5
E.	Security 1	2	3	4	5	
F.	User Evaluation	1	2	3	4	5
G.	Training and Education	1	2	3	4	5
H.	Preservation	1	2	3	4	5
I.	Liability	1	2	3	4	5
J.	Feasibility/Cost	1	2	3	4	5

9. Are there any other issues that you feel are important in your position regarding successful electronic records management of websites?

APPENDIX C

SUPPLEMENTARY DATA COLLECTION FROM

WORLD WIDE WEB FEDERAL CONSORTIUM

World Wide Web Federal Consortium

On April 17, 1997, the principal investigators addressed the monthly meeting of the World Wide Web Federal Consortium, at the invitation of its Chair. During the meeting, the investigators asked attendees to fill out a short questionnaire entitled "Assessment of Key Issues Related to Records Management and Federal Web Sites." (Appendix B) In interpreting the results reported below, the reader should note that most of the attendees filled out the questionnaire *after* the investigators had made their oral presentation, a presentation that argued persuasively for the importance of considering federal records and other policy issues in the management of agency websites. Doubtless the presentation affected questionnaire results in the sense that, had the questionnaire been administered prior to the investigators' presentation, quite different results would have been anticipated.

Results from World Wide Web Federal Consortium Data Collection

Sixteen questionnaires were returned to the investigators in this data collection exercise. Following is a report on results from the questionnaire.

PART I: Background Information

16. Which of the following best describes the SETTING in which you work:

( )	Federal agency	( )	Private for-profit org.
( )	Private nonprofit org.	( )	Other_____

RESPONSES: All but one of the sixteen respondents said they worked in a federal agency; the one exception was a university employee.

17. Years of experience in this setting? _____

RESPONSES:

	N	Percent
20 or more years	7	44%
10 to 19 years	3	19
1 to 9 years	5	31
No Response	1	6

18. Which one category best describes the FIELD in which you work?

( )	Webmaster	( )	Research & Development
( )	Records management	( )	Software development
( )	Program/Project Mgmt.	( )	Procurement/Contracting
( )	Computer Systems	( )	Library/Information Center
( )	Public Information	( )	General IRM

( ) Other_____

RESPONSES:

	N	Percent
Webmaster	2	13%
Records management	1	6
Program/Project Mgmt.	4	25
Computer Systems	0	--
Public Information	0	--
Research & Development	1	6
Software development	1	6
Procurement/Contracting	0	--
Library/Information Center	1	6
General IRM	0	--
Other	4	25

19. Which one category best describes your INVOLVEMENT WITH or INTEREST IN agency web sites?

( ) Implementor of web site ( ) Web site designer
( ) Web site records creator ( ) User of web site
( ) Technical stds developer ( ) Web site policy maker
( ) Other_____

RESPONSES:

	N	Percent
Implementor of web site	4	25%
Web site records creator	0	--
Technical stds developer	4	25
Web site designer	2	13
User of web site	0	--
Web site policy maker	6	38
Other	0	--

5 How familiar are you with the following (circle the appropriate number):

		Very Familiar				Not Familiar
		1	2	3	4	5
f. Fed. Webmaster Consortium's *World Wide Web Homepage Guidelines and Best Practices*	N	8	3	3	0	2
	%	*50*	*19*	*19*	--	*13*
g. Federal records management regulations in general	N	3	1	4	5	3
	%	19	6	25	31	19

h.	Federal records requirements for electronic records	N	1	2	5	5	3
		%	6	13	31	31	19
i.	Draft OMB policy guidance for federal agency web sites	N	5	3	5	0	3
		%	31	19	31	-	31
j.	Paperwork Reduction Act of 1995	N	3	2	6	3	2
		%	19	13	38	19	13

PART II: Key Issues concerning Web sites and Federal Information Policy

Please circle TRUE or FALSE for the following:

			TRUE	FALSE	D.K.
6.	My agency has an electronic mail policy that instructs employees regarding the federal records aspects of email.	N	11	4	1
		%	69	25	6
7.	My agency keeps an historical record or log of all agency web site postings for purposes of accountability.	N	5	8	3
		%	31	50	19
8.	When web site postings are only copies of materials published elsewhere by the agency, we assume the record copy is kept elsewhere as part of agency publications procedures.	N	9	3	4
		%	56	19	25
9.	If the postings are original materials, we have provisions for determining their federal record status and retention schedule.	N	2	8	6
		%	13	50	38
10.	My agency has a written policy covering records management on web sites.	N	2	9	5
		%	13	56	31
11.	Where my agency is accumulating email addresses into a database with intent of future database use, the agency has published a notice of Privacy Act system of records for the database.	N	4	5	7
		%	25	31	44
12.	Where my agency is accumulating cookies and site visitor	N	4	5	7
		%	25	31	44

information, the agency has notified the public it is doing so and what uses it is making of the information.					
13. My agency has an Internet policy that instructs employees regarding the proper use of the Internet for official business, including web site design and management	N	13	2		1
	%	81	13		6

Please circle the number that corresponds with the degree to which you agree or disagree with the following statements.

		STRONGLY AGREE				STRONGLY DISAGREE	DON'T KNOW
		1	2	3	4	5	D.K.
14. Agency web sites are an increasingly important vehicle for communicating the agency's mission and programs.	N	14	2	0	0	0	0
	%	88	13	-	-	-	-
15. Materials posted on agency web sites are essentially boilerplate or ephemeral and federal records considerations are therefore negligible.	N	0	1	3	5	5	2
	%	-	6	19	31	31	13
16. Agencies already have adequate guidance on the policy aspects of their web sites.	N	0	3	4	6	3	0
	%	-	19	25	38	19	-
17. Agency web sites should be integrated with what the agency is doing on the Government Information Locator Service.	N	0	7	4	2	0	3
	%	-	44	25	13	-	19
18. Agency web sites should eventually become repositories for all current agency publications.	N	9	4	2	0	1	0
	%	56	25	13	-	9	-

APPENDIX D

MEMBERS OF THE PROJECT ADVISORY COMMITTEE

Members of the Project Advisory Committee

Bette Dillehay
State Data Administrator
Council on Information Management
Commonwealth of Virginia

Michael Miller
Director, Records Management Programs
National Archives and Records
Administration

Charles Robb, Manager
Technology Analysis & Support Branch
Public Records Division
Kentucky Department for Libraries and
Archives

Glenn R. Schlarman
Office of Information and Regulatory Affairs
Office of Management and Budget

Tim Slavin
Delaware Public Achives

Catherine C.M. Teti
Director
Records Management and Information
Policy
Office of Thrift Supervision
Department of Treasury

Carlynn Thompson
Chair, Federal Webmasters Consortium
& Director, Research, Development &
Acquisition Support
Defense Technical Information Center

Mary Ann Wallace
Records Officer
Records Management Team, HR-424
U.S. Dept. of Energy